

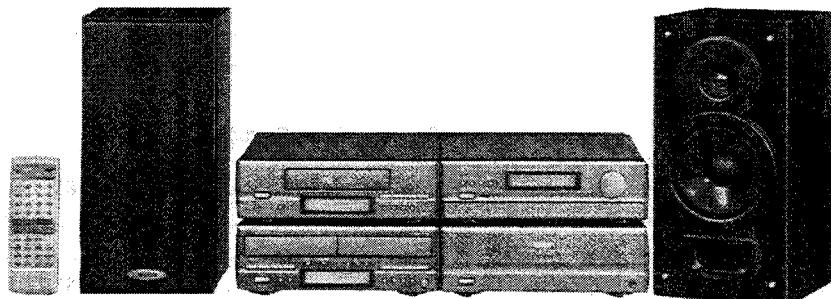
DENON

Hi-Fi Personal Component System

SERVICE MANUAL

PERSONAL COMPONENT SYSTEM

UNIT No. UCD-250 (Compact Disc Player)



● The D-250 Personal Component System consists of the following:

Power Amplifier MW, LW, FM Tuner / Pre Amplifier Section	UPO-250
Remote Control Unit	UTP-250
Cassette Deck Section	RC-154
CD player Section	UDRW-250 UCD-250

MAIN FEATURES

- **AM/FM 30-station random preset tuner**
Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
High quality 50 W per channel power amplifier with large speaker terminals.
- **New SDB control**
The Super Dynamic Bass control circuit delivers clear bass sound.
- **Super linear converter and high performance digital filter**
Denon's unique systems for preventing loss of CD sound quality permit excellent sound field reproduction.

- **Editing circuit**
Automatic selection of CD tracks for minimum blank space on the tape when recording.
- **Dolby B, C and HX PRO circuits**
For high quality sound in playback and recording.
- **CD SRS circuit**
CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on/off function**
This function switches on the power with just a press of the CD or cassette deck play button. The power is switched off about 10 minutes after playback has finished.

BEFORE USING

- **Moving the system**
To prevent short-circuiting or damage of connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
In addition, always remove CDs before moving the system. If not, the CD may be scratched.
- **Before turning the power on**
Check again that all connections are proper and that the connection cords are not damaged. Always set the power switch to the STANDBY position before disconnecting connection cords.

- Humming may be produced if the system is set near a TV set or other audio component or its connection cords. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, as this may cause dew (water droplets) to form in the set, preventing proper operation. If this happens, wait one hour before using the system.
- Be sure to keep this manual
The illustrations used in this manual may differ from the actual system.

Check that the following parts are included in the package aside from the main unit:

① Operating Instructions	1
② FM Antenna	1
③ AM Loop Antenna	1
④ Remote Controller	1
⑤ R6P/AA batteries	2
⑥ System Connectors 1 & 2	2
⑦ FM Antenna adaptor	1
⑧ Pin Plug Cords	4

NIPPON COLUMBIA CO., LTD.

GENERAL SECTION

TABLE OF CONTENTS

General Section

- Main Features 1
- Before Using 1
- Main Specifications 3
- Operating Instructions 4~24

Tuner, Pre Section

- Level Diagram 25
- Block Diagram 26, 27
- Assembly Procedures 28, 29
- Adjustment 30, 31
- Semiconductors 32~34
- Microprocessor Documentation 34~36
- Microprocessor Peripheral Wiring Diagram 37
- Printed Wiring Board, Parts List 38~41
- Wiring Diagram 42
- Schematic Diagram 43
- Exploded View, Parts List 44
- Remote Control Unit 45

Amplifier Section

- Disassembly Procedures 46, 47
- Block Level, Diagram 48
- Adjustment 49
- Semiconductors 49
- Printed Wiring Board, Parts List 50~52
- Schematic Diagram 53
- Exploded View, Parts List 54, 55
- Wiring Diagram 56

CD Section

- Disassembly Procedures 57, 58
- Block Diagram 59
- Laser Pickup 60, 61
- Service Points 62, 63
- Adjustment Method 64, 65
- Printed Wiring Board, Parts List 66~69
- Semiconductors 70~74
- Microprocessor Peripheral Wiring Diagram 75
- Wiring Diagram 76
- Schematic Diagram 77
- Exploded View, Parts List 78
- Disassembly of CD Mechanism 79

Cassette Deck Section

- Disassembly Procedures 80, 81
- Level Diagram 82
- Block Diagram 82
- Adjustment 83, 84
- Semiconductors 84~86
- Microprocessor Documentation 87, 88
- Microprocessor Peripheral Wiring Diagram 89
- Printed Wiring Board, Parts List 90~95
- Wiring Diagram 96
- Schematic Diagram 97
- Exploded View, Parts List 98
- Cassette Mechanism 99~104

Tuner Pre-Amp Unit	UTP-250	1S
Power Amplifier Unit	UPO-250	1S
CD Player Unit	UCD-250	1S
Cassette Deck Unit	UDRW-250	1S
Top Cushion	503 1002 001	1
Top Spacer	502 0763 018	1
Top Spacer	502 0763 034	1
Space Cushion (Master) Carton	502 9124 001	2
(Master) Carton	501 1626 012	1
Envelope Sub Assy		1S
Envelope	505 8006 019	1
Notice Sheet	515 0601 008	1
Inst. Manual	511 2421 006	1
Loop Antenna	231 0922 009	1
Remocon (RC-154)	499 0228 008	1
FM Ant. Ass'y	395 0019 025	1
Envelope Sub Ass'y		1S
Envelope	505 9119 002	1
Output Cord Ass'y	009 9022 015	2

SPECIFICATIONS

- Tuner-preamplifier (UTP-250)

Reception Frequency Range:

FM: 87.50 MHz to 108.00 MHz

AM: 522 kHz to 1611 kHz (MW), 153 kHz to 279 kHz (LW)

Receiving Sensitivity:

FM: 1.5 µV, 75 ohms (SN ratio 30 dB)

AM: 20 µV (SN ratio 20 dB, MW), 35 µV (SN ratio 20 dB, LW)

FM Stereo Separation:

40 dB (1 kHz)

Bass Adjustment:

100 Hz ±8 dB

Treble Adjustment:

10 kHz ±8 dB

Super Dynamic Bass:

80 Hz +8 dB

Jacks:

PREOUT: Output jacks

PHONO: Input jacks

DAT: Input jacks, recording output jacks

Processor: Processor input/output jacks

Dimensions (max.):

270 (W) × 86 (H) × 330 (D) mm (10-5/8" × 3-25/64" × 13")

Weight:

3.2 kg (7 lbs 10 oz)

Power Supply:

AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)

Power Consumption:

18 W

- Amplifier (UPO-250)

Rated Output Power:

50 W + 50 W (20 Hz to 20 kHz, 8 ohm)

Jacks:

6.3 mm headphone jack

Dimensions (max.):

270 (W) × 96 (H) × 330 (D) mm (10-5/8" × 3-25/32" × 13")

Weight:

4.1 kg (9 lbs 1 oz)

Power Supply:

AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)

Power Consumption:

140 W

- CD Player (UCD-250)

Wow and Flutter:

Below measurable limits (±0.001% W. Peak)

Sampling Frequency:

44.1 kHz

Light Source:

Semiconductor

Dimensions (max.):

270 (W) × 86 (H) × 313 (D) mm (10-5/8" × 3-25/64" × 12-21/64")

Weight:

3.1 kg (6 lbs 13 oz)

Power Supply:

AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)

Power Consumption:

15 W

- Cassette Deck (UDRW-250)

Type:

Horizontal 4-track, 2-channel auto reverse stereo cassette deck

Heads:

1 hard permalloy recording/playback head, 1 hard permalloy playback head, and 1 double-gap ferrite erase head

Tape Speed:

4.75 cm/s

Noise Reduction Circuits:

Dolby B and C NR

Usable Tapes:

Normal, chrome, and metal tapes

Dimensions (max.):

270 (W) × 96 (H) × 318 (D) mm (10-5/8" × 3-25/32" × 12-33/64")

Weight:

4.4 kg (9 lbs 11 oz)

Power Supply:

AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)

Power Consumption:

18 W

- Remote Control Unit (RC-154)

Type:

Infrared pulse

Number of Buttons:

41 (including 1 slide switch)

Dimensions (max.):

60 (W) × 177 (H) × 18 (D) mm (20-23/64" × 6-31/32" × 45/64")

Weight:

130 g (Approx. 6.4 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers. (W) = width, (H) = height, (D) = depth.

• For improvement purposes, specifications and functions are subject to change without advanced notice.

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

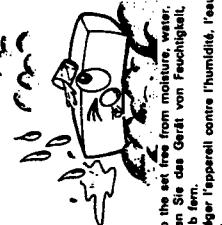
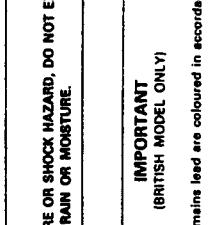
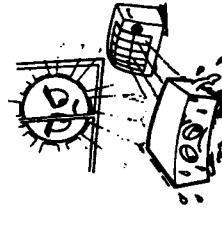
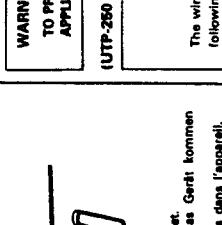
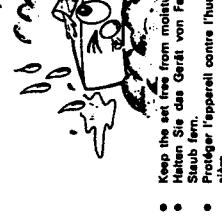
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLÉ. ÄLÄ KATSO SÄTEESEN.

VARNING - OSYNLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION/NOTE SULL'USO

D-250

GENERAL SECTION

SAFETY IMPORTANT	
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. (UTP-250 only)	IMPORTANT (BRITISH MODEL ONLY) The wires in this mains lead are coloured in accordance with the following code: Blue: Neutral Brown: Live The colours of the wires in the main lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug provided as follows: The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
 <ul style="list-style-type: none"> Keep the set free from moisture, water, and dust. Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern. Protéger l'appareil contre l'humidité, l'eau et la poussière. Tenete l'unità lontana dall'umidità, dell'acqua e della polvere. 	<ul style="list-style-type: none"> Do not let foreign objects in the set. Keine fremden Gegenstände in das Gerät kommen lassen. Ne pas laisser des objets étrangers dans l'appareil. E importante che nessun oggetto è inserito all'interno dell'unità.
 <ul style="list-style-type: none"> Avoid high temperatures when installed on a rock. Vermeiden Sie hohe Temperaturen Beachten Sie, daß einezureichende Lufzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird. Evitez des températures élevées Tenez compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère. Evitez de reposer l'unité à température élevée. Assurez-vous que ci sia un'adeguata dispersion del calore quando installate l'unità in un mobile per componenti audio. 	<ul style="list-style-type: none"> Do not let insecticides, benzene, and thinner come in contact with the set. Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdunstungsmitteln in Berührung kommen. Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil. Assicuratevi che l'unità non venga in contatto con insetticidi, benzolo o solventi.
 <ul style="list-style-type: none"> Avoid high temperatures when dispersed when installed on a rock. Vermeiden Sie hohe Temperaturen Beachten Sie, daß einezureichende Lufzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird. Evitez des températures élevées Tenez compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère. Evitez de reposer l'unité à température élevée. Assurez-vous que ci sia un'adeguata dispersion del calore quando installate l'unità in un mobile per componenti audio. 	<ul style="list-style-type: none"> Unplug the power cord when not using the set for long periods of time. Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzteil vom Netzstecker ab. Débrancher le cordon d'alimentation lorsque l'appareil n'en sera utilisé pendant de longues périodes. Dismantle the cable of alimentation quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.
 <ul style="list-style-type: none"> Handle the power cord carefully. Geben Sie vorsichtig mit dem Netzkabel um. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen. Manipuler le cordon d'alimentation avec précaution. Tenir le cordon lors du débranchement du cordon. Manteniglie il filo di alimentazione con cura. Agite per le spine quando scolligate il cavo dalla presa. 	<ul style="list-style-type: none"> Never disassemble or modify the set in any way. Verwenden Sie niemals das Gerät auszuhändigen oder herstellen oder auf jegliche Art zu verhindern. Ne jemals demontieren ou modifier l'appareil d'une manière ou d'une autre. Non smontate mai, né modificate l'unità in nessun modo.
 <ul style="list-style-type: none"> If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase. Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netztecker heraus und kontaktieren Sie Ihren Händler. 	<p>Irregularities</p> <ul style="list-style-type: none"> If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase. Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netztecker heraus und kontaktieren Sie Ihren Händler.
 <ul style="list-style-type: none"> Irregularities Si de la fumée sort de la chaîne ou des odeurs bizarres, placer l'interrupteur d'alimentation immédiatement sur la position de veille (STANDBY), débrancher le cordon d'alimentation et contacter le distributeur. 	<p>Anomalies</p> <ul style="list-style-type: none"> Qualora il sistema dovesse produrre fumo o degli odori strani, collocare immediatamente l'interruttore di accensione nella posizione STANDBY, disinnestate il filo di alimentazione e rivolgervi al negozi dell'acquisto.



**"CLASS 1
LASER PRODUCT"**

- VORSICHT!**
- ADVARSEL:**
- VAROINTI!**
- VARNING:**
- CLASS 1 LASER PRODUCT**
- LAITTEEN KÄYTÄMINNEN MUUALLA KUIN TÄSSÄ ALITTAA KÄYTÄJÄN TURVALLISUUDEN LÄTTÄVÄLLÄ KÄÄNTÄVÄTÄVÄÄ LÄPPÄÄNOMALLE LÄPPÄÄTÄVÄÄ.**
- OM APPARATEN ANVÄNTAS PÅ ANNAT SÄTT AN I DENNA BRUKSANVISNING SPECIFICERAD, KAN ANVÄNDAREN UTÅTTAS FÖR OSENLIG LASERTÄVLÄMING SOM ÖVERSKÖNDER GRÄNSER FÖR LASERTÄVLÄMING 1.**

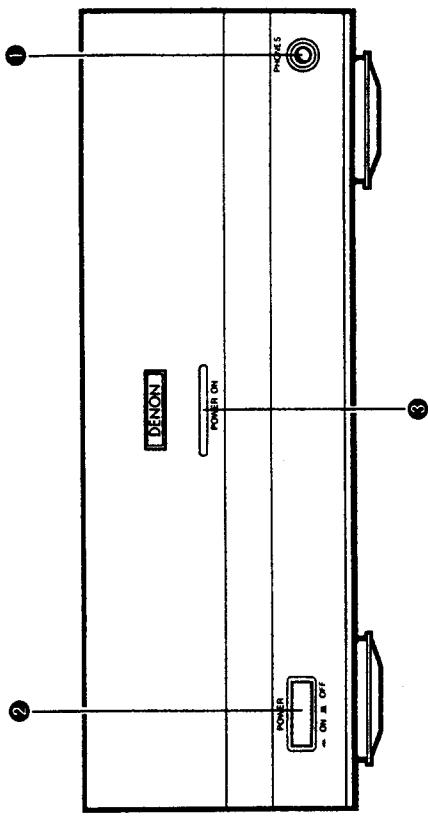
“SERIAL NO. _____
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE”

GENERAL SECTION

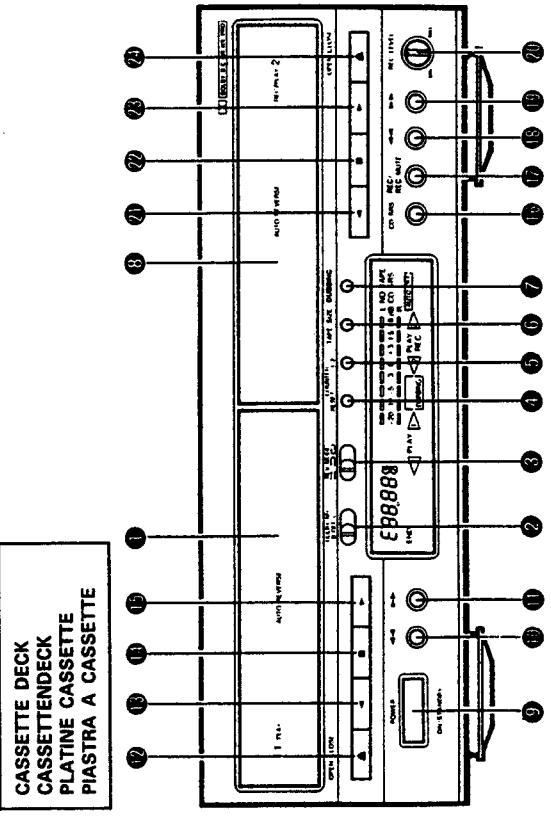
FRONT PANEL / FRONTPLATTE / PANNEAU AVANT / PANNELLO ANTERIORE

POWER AMPLIFIER
LEISTUNGSVERSTÄRKER
AMPLIFICATEUR DE PUISSANCE
AMPLIFICATORE DI POTENZA

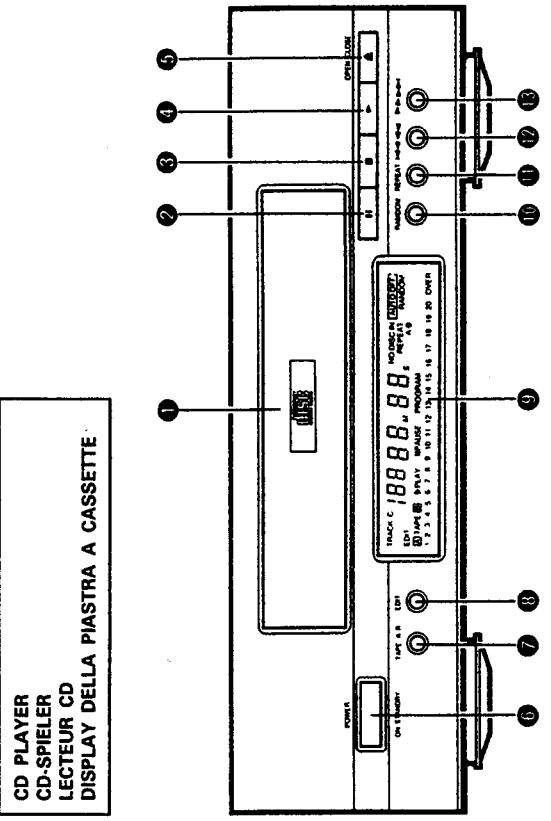
TUNER-PREAMPLIFIER
TUNER-VORVERSTÄRKER
TUNER-PREAMPLIFICATEUR
SINTONIZZATORE-PREAMPLIFICATORE



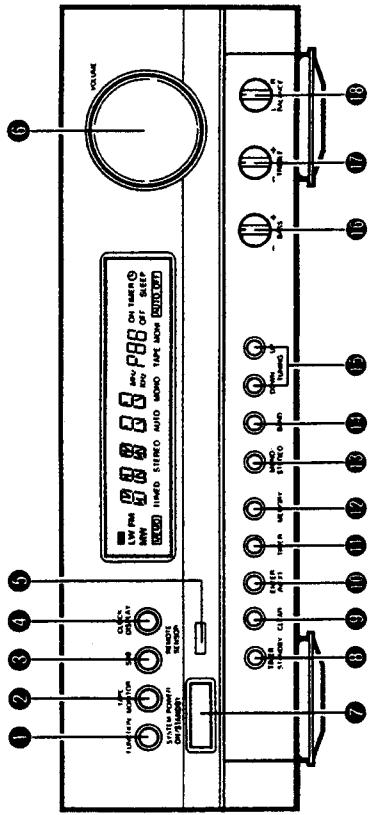
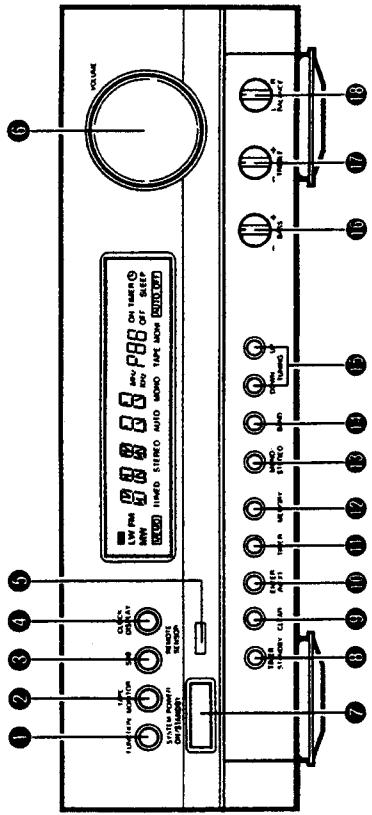
CASSETTE DECK
CASSETTENDECK
PLATINE CASSETTE
PIASTRA A CASSETTE



CD PLAYER
CD-SPIELER
LECTEUR CD
DISPLAY DELLA PIASTRA A CASSETTE



- As an aid to better understanding the operation method, the illustrations used in this manual may differ from the actual system.
- Als Hilfestellung zum besseren Verständnis der Betriebsmethode, erlauben wir uns den Hinweis, daß sich die Abbildungen in dieser Bedienungsanleitung leicht von dem aktuellen System unterscheiden.
- Pour faciliter la compréhension de la méthode de fonctionnement, les illustrations utilisées dans ce manuel peuvent être différentes de celles de la chaîne réelle.
- Per rendere la spiegazione del metodo operativo più facile, le illustrazioni usate in questo libretto delle istruzioni possono differire dal sistema stesso.



3 ANTENNA CONNECTIONS

Connecting the Included Antennas

1 Main Features	4
2 Before Using	4
3 Antenna Connections	4
4 Connections	5
5 Part Names and Functions	5
• Power Amplifier	6
• Tuner-Preamplifier	6
• Cassette Deck	6
• CD Player	7
• Display	7-8
6 Listening to Radio Broadcasts	9-10
7 Using the Timer	10-13
8 Cassette Deck	13, 14
• Before Recording and Playback	13
9 Playing Cassette Tapes	13
10 Editing circuit	1
• Operating Instructions	1
11 FM Antenna	1
12 AM Loop Antenna	1
13 Remote Control	1
14 RSP/AA Batteries	2
15 System Connectors 1 & 2	2
16 FM Antenna Adaptor	1
17 Pin Plug Cords	4

Check that the following parts are included in the package aside from the main unit:

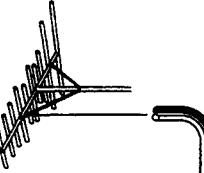
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② FM Antenna	1
③ AM Loop Antenna	1
④ Remote Control	1
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⑥ System Connectors 1 & 2	2
⑦ FM Antenna Adaptor	1
⑧ Pin Plug Cords	4

1 MAIN FEATURES

- AM/FM 30-station random preset tuner
Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- Independent power amplifier designed for quality sound
High quality 50 W per channel power amplifier with large speaker terminals.
- New SDB control
The Super Dynamic Bass control circuit delivers clear bass sound.
- Auto on/off function
This function switches on the power with just a press of the CD or cassette deck play button. The power is switched off about 10 minutes after playback has finished.

Connecting an Outdoor Antenna

Use an outdoor antenna if reception cannot be heard clearly with the included antenna. Change the location, height, and direction of the antenna to find the position of best reception, then fix the antenna in that position.

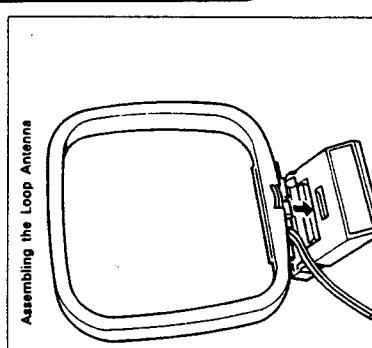


75-ohm coaxial cable
(3C-3V or other)

• Connect the outdoor antenna using a 75-ohm coaxial cable. This will help shield the antenna from external noise.

Places for Installing Outdoor Antennas

- Install the outdoor antenna facing a broadcast station's transmission antenna.
When surrounded by buildings or hills, place the antenna in the location which provides best reception and try changing the direction of the antenna to obtain optimum reception.
- Do not install the antenna under power lines.
It is extremely dangerous for the antenna to come into contact with a power line.
- Install away from roads and train tracks to prevent noise from cars and trains.
- Do not install the antenna too high, as it may be hit by lightning.



75-ohm coaxial cable
(3C-3V or other)

- Remove the tie fastening the loop antenna's lead and connect the lead to the antenna terminals.
- Separate the FM and AM antenna wires from the system connector wires.

2 BEFORE USING

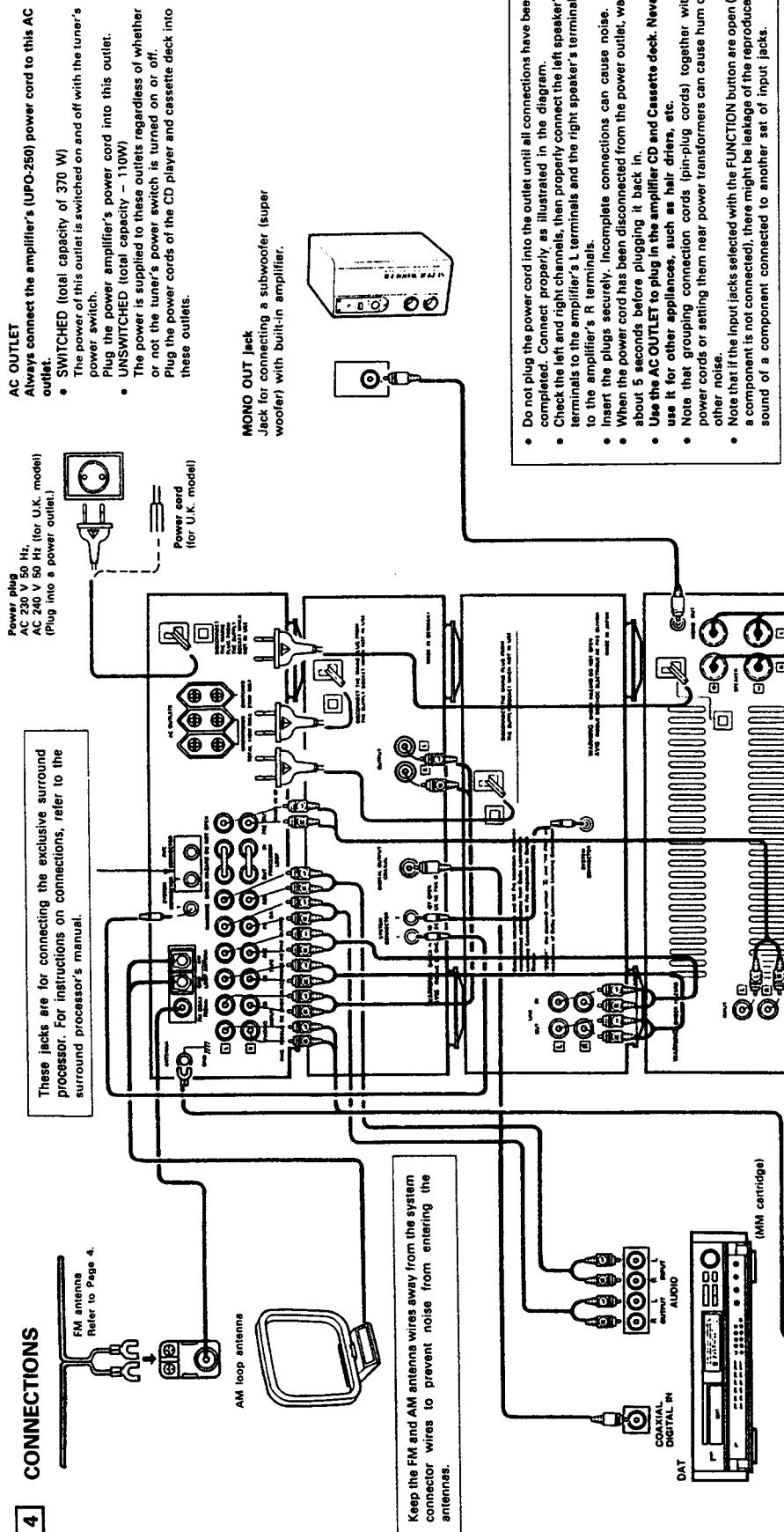
- Hum may be produced if a TV set or another audio component is set near this system or their connection cords are nearby. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, since this may cause water droplets (condensation) to form in the equipment, preventing proper operation. If this happens, wait one hour before using the system.

- Note the following points before using the D-250.

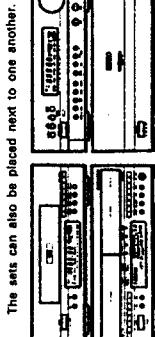
- Moving the system
To prevent short-circuiting or damage of the connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
In addition, always remove CDs before moving the system.
Failing to do so may result in scratched CDs.
- Before switching on the power
Check again that all connections are proper and that the connection cords are not damaged. Be sure to disconnect the power plug before disconnecting or connecting the connection cords.

GENERAL SECTION

4 CONNECTIONS

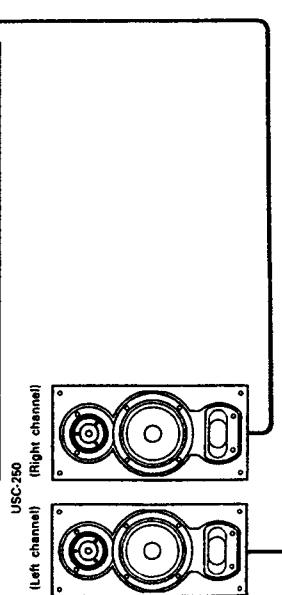
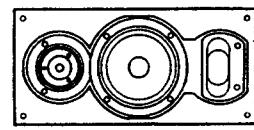


- Do not plug the power cord into the outlet until all connections have been completed. Connect properly as illustrated in the diagram.
- Check the left and right channels, then properly connect the left speaker's terminals to the amplifier's L terminals and the right speaker's terminals to the amplifier's R terminals.
- Insert the plugs securely. Incomplete connections can cause noise.
- When the power cord has been disconnected from the power outlet, wait about 5 seconds before plugging it back in.
- Use the AC OUTLET to plug in the amplifier CD and Cassette deck. Never use it for other appliances, such as hair dryers, etc.
- Note that grouping connection cords (pin-plug cords) together with power cords or setting them near power transformers can cause hum or other noise.
- Note that if the input jacks selected with the FUNCTION button are open (if a component is not connected), there might be leakage of the reproduced sound of a component connected to another set of input jacks.



NOTE: System operation is not possible and the power cannot be turned on and off unless all system connector cords and pin-plug cords are connected.

The sets can also be placed next to one another.



Speaker system connections
Connect the speaker system for the left channel (the left side as seen from the front) to the L terminals, and the speaker system for the right channel to the R terminals.

5 PART NAMES AND FUNCTIONS

POWER AMPLIFIER

- 1** **PHONES jack**
When using headphones, plug them in here.
The sound from the speakers is cut when headphones are plugged in.
- 2** **POWER switch**
When pressed once, the power is switched on and the power indicator LED lights up. This switch is usually left on.

TUNER-PREAMPLIFIER

- 1** **FUNCTION button**
Use this to select the program source.
The selection changes in the order of TUNER, TAPE, CD, PHONO, and DATA.
- 2** **TAPE MONITOR button**
Use this to listen to the sound of the tape. When used with a 3-head tape deck, the sound can be monitored while recording.
- 3** **SDB (Super Dynamic Bass) button**
Press this button for more powerful bass sound.
- 4** **CLOCK/DISPLAY button**
This button switches the display to the reception frequency or the function display and time display.
- 5** **Remote control sensor**
The remote control unit is pointed toward this sensor and operated.
- 6** **VOLUME control**
This control adjusts the overall volume. Turn clockwise (↑) to increase the volume, counterclockwise (↓) to decrease it.
- 7** **SYSTEM POWER button**
(This switch can switch on the power for the entire system.) Press to switch the power on, press again to put the system into standby.
- 8** **TIMER STANDBY button**
Press this button to cause the timer to operate at the set time. When the timer has been set, pressing this button will light up the display's timer standby indicator (①), and pressing it again will switch off the standby indicator. The timer will not function when the standby indicator is off.
- 9** **CLEAR button**
This button is used to change the current time setting or the contents of the set timer.
- 10** **ENTER/NEXT button**
This is used when setting the timer, setting the current time, and when advancing to the next operation.
- 11** **TIMER button**
This is used to set the timer.
- 12** **MEMORY button**
This button is used when presenting FM, MW and LW stations.
- 13** **(MONO/STEREO**
(FM stereo mute/mono) button
This button will not function when receiving MW/LW broadcasts.
STEREO Use this mode to receive FM broadcasts in stereo.
(mono) "AUTO" appears on the display. The routing circuit is activated to cut the hiss noise between stations.
MONO: FM broadcasts are received in monaural, regardless of whether they are broadcast in monaural or stereo.
Set to the mono mode if there is much noise in the stereo mute mode (with "AUTO" displayed) or if the signals are weak.
- 14** **BAND (FM/MW/LW selection) button**
With each press, the band is switched in the order of FM, MW, LW, FM, and so on.
- 15** **TUNING UP and DOWN buttons**
Use these to tune in FM, MW or LW stations and when setting the clock and timer.
- 16** **BASS control**
Use this control to adjust the bass.
- 17** **TREBLE control**
Use this control to adjust the treble.
- 18** **BALANCE control**
Use this control to adjust the balance of the volume between the left and right channels. The volume is the same for the left and right channels when the control is at the center.

CASSETTE DECK

- 1** **Cassette tray: Deck 1**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.
- 2** **DOLBY NR selection switch**
Use this switch to select the Dolby NR mode: off, B type or C type. During playback, set this switch to the same mode in which the tape was recorded.
- 3** **REV MODE switch**
Use this switch to set the reverse mode to one of the following modes: **—** (single side model), **□** (two-side model), or **○** (continuous mode). Refer to Page 13 for details.
- 4** **COUNTER RESET button**
Press this button to reset the tape counter to **00.00**.
- 5** **COUNTER 1/2 selection button**
Use this button to change the counter display between deck 1 and deck 2.
- 6** **TAPE SIZE setting button**
Set the size of the tape to the length of the tape being used. Refer to Page 8 for details.
- 7** **DUBBING button**
Simply pressing this button permits dubbing (copying) a tape from deck 1 to deck 2.
- 8** **Cassette tray: Deck 2**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.
- 9** **POWER ON/STANDBY switch**
This switch turns the power of the cassette deck on and off.
- 10** **◀ (rewind) button: Deck 2**
Press this button to rewind the tape in deck 2. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ▲ (reverse) direction, the tape is rewound to the beginning of the next selection (on the back side of the tape).
- 11** **▶ (fast-forward) button: Deck 2**
Press this button to fast forward the tape in deck 2. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ▲ (reverse) direction, the tape is fast forwarded to the beginning of the next selection (on the back side of the tape).
- 12** **REC LEVEL (recording level) control**
Use this control to set the recording level.
- 13** **◀ (reverse play) button: Deck 2**
Press this button to begin playback in the reverse direction on deck 2.
- 14** **▶ (forward play) button: Deck 2**
Press this button to begin playback in the forward direction on deck 2.
- 15** **■ (stop) button: Deck 2**
Press this button to stop the moving tape in deck 2.
- 16** **OPEN/CLOSE button: Deck 1**
Press this button to open and close the cassette tray. The button also works in the standby condition.

GENERAL SECTION

GENERAL SECTION

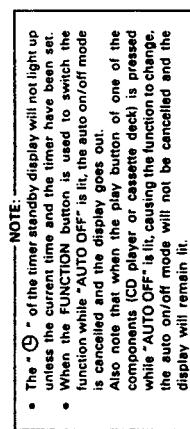
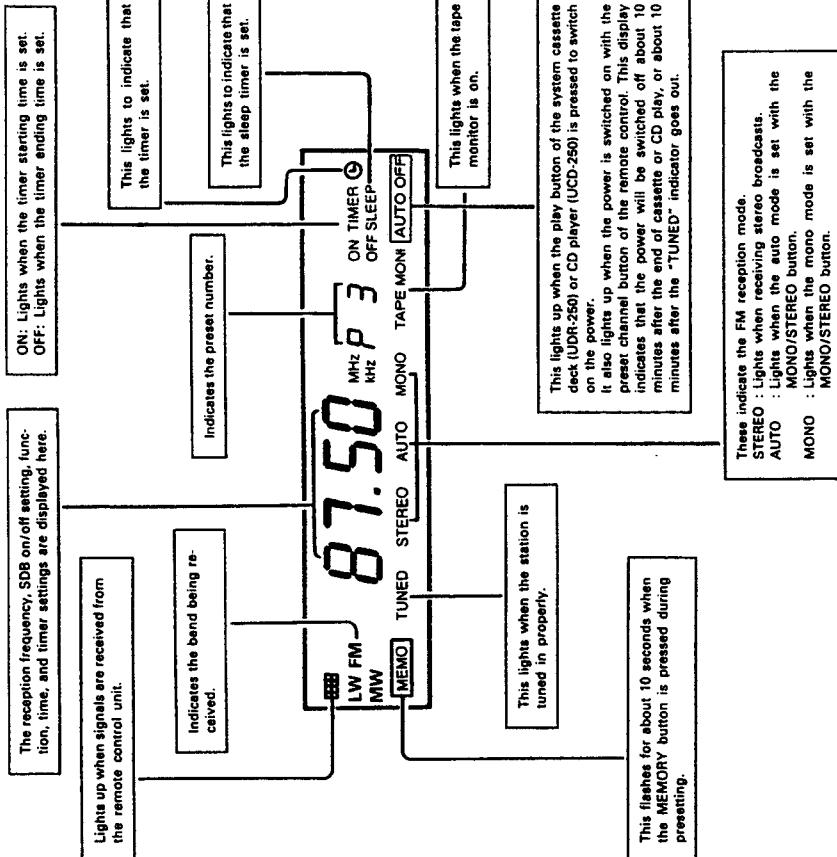
TUNER-PREAMPLIFIER DISPLAY

▲ OPEN/CLOSE button: Deck 2
Press this button to open and close the cassette tray. The button also works in the standby condition.

- Deck 1 is for playback only and deck 2 is for recording and playback.
- After the power cord is plugged into an outlet, a mechanical sound is produced from the cassette deck when the power switch is pressed on the first time only. This is the sound of the cassette mechanism being set to the proper operating position, and is not a problem with the deck.

CD PLAYER

- ① Disc tray
Compact discs are loaded to the disc tray.
- ② II Pause button
Press this button to stop CD play temporarily.
- ③ ■ Stop button
Press this button to stop CD play.
- ④ ▶ Play button
Press this button to start playing the disc. If pressed when the disc tray is open, the disc tray closes and playback begins. Pressing this button in the standby mode automatically switches on the power and plays the disc.
- ⑤ ▲ OPEN/CLOSE button
Press this button to open the disc tray. Press once to open the disc tray forward, then press again to close the disc tray. This button also operates in the standby mode.
- ⑥ POWER ON/STANDBY switch
Press this to switch the CD player's power on and off.
- ⑦ TAPE A/B button
Press this button during editing to switch the display between the display of program contents for tape side A and the display for tape side B.
- ⑧ EDIT button
Press this button for edited recording (dividing the tracks to be recorded to fit onto sides A and B of a tape according to the length of the tape).
- ⑨ Display
This displays the time and the settings of the various buttons.
- ⑩ RANDOM button
Press this button to play the disc tracks in random order.
- ⑪ REPEAT button
Press this button for repeat play.
- ⑫ KK (automatic/manual button)
Press this button to move the pickup back to the beginning of the desired track.
Press in the play, stop, or pause mode to move back a number of tracks equal to the number of times the button is pressed.
- ⑬ KK (automatic/manual search forward button)
Press this button to move the pickup forward to the beginning of the desired track.
Press in the play, stop, or pause mode to move forward a number of tracks equal to the number of times the button is pressed.
• The automatic search function is set if button ⑫ or ⑬ is released within 0.5 seconds, and the manual search function is set if the button is held in for more than 0.5 seconds.
• Buttons ⑫ and ⑬ do not function in the pause mode.



Trap Door

- To open the trap door, press area of the PUSH OPEN △ indication at the upper right of the panel. When the door lock is released, open the door with your hand.
- To close the trap door, press the indicated area at the upper right of the panel and lock the door.

GENERAL SECTION

CASSETTE DECK DISPLAY

USING THE TAPE COUNTER

1. Tape Counter Display

- The tape counter indicates the elapsed time of the running tape in minutes and seconds.

59'59"

(Minutes)

(Seconds)

Lights up during tape playback of deck 2, and flashes while the tape is being wound to the beginning of a selection.

Lights during recording and recording standby.

Indicates whether the counter display is for deck 1 or deck 2.

Lights up during tape playback of deck 1, and flashes while the tape is being wound to the beginning of a selection.

The counter numbers indicate time.

E 00 00 00

END

PLAY 1 DUBBING REC 2

-20 -10 -5 -3 0 +3 +5 +8 dB CD SRS

L NO TAPE

R

AUTO OFF

Indicates the direction of tape travel in deck 1. "►" indicates the forward direction, and "▼" indicates the reverse direction.

Lights during the dubbing (copying) operation from deck 1 to deck 2.

AUTO OFF: Lights during the auto off mode.
OFF: Lights during standby.

The direction of tape travel indicators also serve to indicate whether a cassette tape is loaded. These indicators do not light up when the tape is stopped or when there is no cassette tape loaded.

8

2. Tape Size Selector

- Match the tape size with the tape being used.
- Press the TAPE SIZE button until the desired tape size is displayed, then press the button again while the tape size is being displayed to set it. With each press of the button, the display will change according to the following cycle.

C46 → C50 → C54 → C60 → C74 → C90 → C100 → C120

C54L → C50L → C46L

* Only values included in the display can be set.

3. END Display

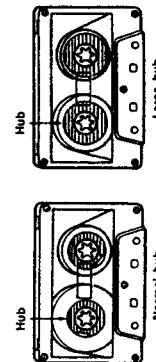
This display indicates that the tape is reaching the end during recording or playback.

- Match the tape size with the tape you are going to use.
- The END indicator will start flashing when the remaining time to the end of the tape is about 5 minutes. (Note that this will be the case only when the TAPE SIZE setting and the length of the tape are in agreement. When the tape used and the TAPE SIZE setting differ, a large error may arise in the time at which the END indicator starts flashing.)
- When the tape has been recorded or played back to its end, the flashing of the END indicator will change to steady lighting.
- Note that this indicator is only a guide and its operation will vary according to the size of the hub diameter of the tape as well as with differences of tape thicknesses, so that the END indicator might not light in some cases.

NOTE:

This deck's linear tape counter has been set for the following cassette tape lengths: C46, C50, C54, C60, C74, C90, C100, C120, C46L, C50L, and C54L. [L indicates large-hubbed cassettes.]

Using a tape that lies outside of this range, or a tape with a different length than the displayed length, will result in error. When using a tape that is not included in the TAPE SIZE selection, select the tape size closest to the length of the tape to be used. (This will reduce the error.) The linear tape counter is not accurate like a clock. The thicknesses of the tape will differ depending on the type of tape used (tape position and time), and so there will be some error introduced. Error also arises from the difference between tapes with smaller and larger hubs.



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GENERAL SECTION

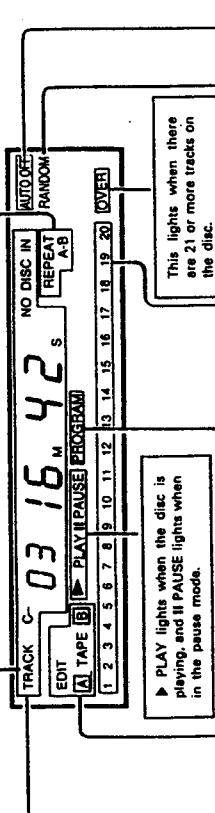
CD PLAYER DISPLAY

Tape type and remaining time display
During the editing operation, C-D lights and the
tape time is displayed.

Track number display
00/00 is displayed when the disc data cannot be read properly.
When a disc is loaded:

- The total number of tracks is displayed in the stop mode.
- The track number is displayed in the play and program modes.
- (C or J) is displayed when the innermost or outermost section of the disc is reached in the manual search mode.

The indicators switch as follows when the REPEAT button is pressed in the play mode:
 First press: REPEAT (single track repeat) The repeated track number lights on the disc calendar.
 Second press: REPEAT (all tracks repeat) The track numbers of the tracks on the disc light.
 Third press: REPEAT A-B.
 Fourth press: REPEAT A-B.
 Fifth press: No display
 • When track 21 or higher is repeated in 1-track repeat, the TRACK number flashes.



PROGRAM lights during the programmed selection mode.

During the editing operation, EDIT [A] TAPE lights up, the remaining time for side A of the tape is indicated on the time section of the display, the track numbers set for side A light on the calendar section of the display, while the track numbers set for side B flash. When the TAPE A/B button is pressed, [A] goes off, [B] lights, and the remaining time and track numbers set for side B are indicated in the same way.

Music calendar display

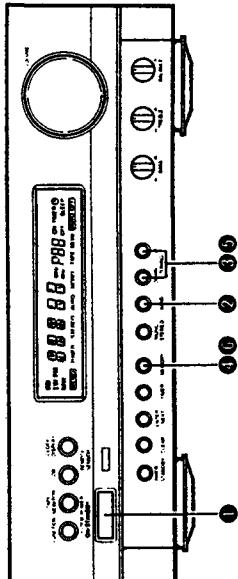
This indicates the track numbers on the disc to a maximum of 20.
The track numbers go off after the corresponding tracks are played.
In the program mode, the track numbers of the programmed tracks are indicated to a maximum of 20.

- NO DISC lights on the display if no disc is loaded, or if the disc is loaded upside-down or is heavily scratched or dirty.

[6] LISTENING TO RADIO BROADCASTS

(Check that connections are proper, referring to Page 5)

TUNING



Example: Tuning to 87.50 MHz, FM

1	Set the VOLUME control to the minimum position, then press the SYSTEM POWER button.
2	Select the FM band with the BAND button.
3	Use the UP and DOWN buttons to set the frequency to 87.50 MHz.

Presetting MW, LW and FM Stations

Example: Presetting the (currently tuned) FM 87.50 MHz to preset number 3

4	Press the MEMORY button. [MEMO] flashes for 10 seconds.
5	Use the UP and DOWN buttons to call up the number to which you want to preset the station. Or, directly press the number buttons on the remote control unit. The preset number will flash.
6	Press the MEMORY button while [MEMO] is flashing.

Up to 30 MW, LW and FM stations can be preset at random using this procedure.
Auto Tuning

- When the TUNING buttons are pressed, the frequency changes in steps of 50 kHz for FM, 9 kHz for MW and 1 kHz for LW.
- If the TUNING UP or DOWN button is held in for more than 1 second, the frequency continues to change when the button is released.
- The next station is tuned in automatically and the tuning stops there. Note that tuning will not stop if not stop when the antenna input is weak and the [TUNED] indicator does not light. To stop the auto tuning, press the UP or DOWN button again.

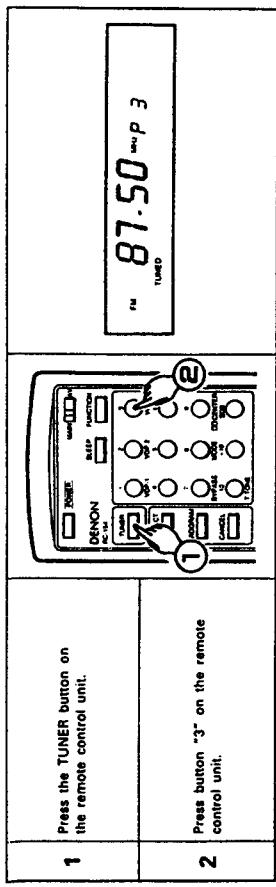
GENERAL SECTION

7 USING THE TIMER

Setting the Timer

Listening to Preset Stations

Example: Listening to the FM station preset at number 3



- Press the TUNER button on the remote control unit.

- Press button "3" on the remote control unit.

Notes on Presetting

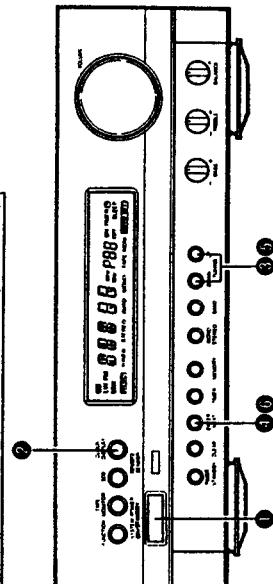
- When an FM station is preset, the auto or monaural mode is also set, so check the display before presetting the station.
- If a station is preset to a number at which another station has previously been preset, the previous station is cleared and the new station is preset.
- If the power cord is unplugged, the preset memory is not cleared immediately, but will be cleared if the cord is left unplugged over a long period. Should this happen, preset the stations again.

<ul style="list-style-type: none"> Be sure to set the current time. Regular timer: The power can be switched on and off once every day at the same time. (Wake-up music) Sleep timer: The power can be set to turn off in up to 60 minutes in steps of 10 minutes using the remote control unit. (Bedtime music) 	
<p>Be sure to preset stations before setting the timer. Refer to "Presetting MW, LW and FM Stations" on Page 9.</p> <ul style="list-style-type: none"> Turn the standby switch off when not using the timer. 	

Power Failure

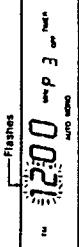
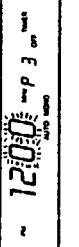
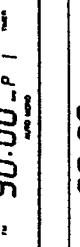
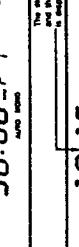
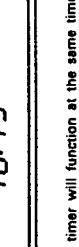
Should a power failure occur or if the power cord becomes unplugged from the power outlet, 00:00 or the time at which the power failed will flash on the time display. If this happens, reset the current time. (Reset the current time and timer settings. If 00:00 was displayed, also reset the stations preset on the tuner.) The standby mark starts flashing if there is a power failure or the power cord is unplugged while the tuner's preset channels are set. To make the standby mark stop flashing, press the TIMER button, then press the TIMER or CLEAR button while "FUNC" is displayed.

Setting the Current Time (A 24-hour clock display is used.)



Example: Setting to 19:30 (7:30 p.m.)

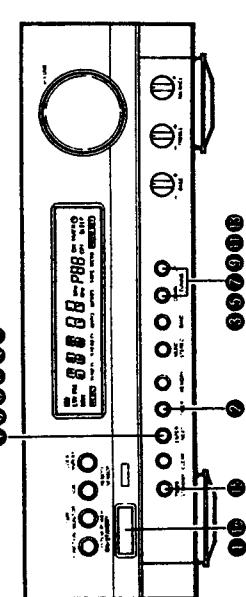
1 Press the SYSTEM POWER button.		00:00	The hour's place flashes.
2 Hold in the CLOCK/DISPLAY button for 3 seconds or longer.		19:00	(All places flash if the time has already been set.)
3 Set the hours with the UP and DOWN buttons.		19:00	The set places flash.
4 Press the ENTER/NEXT button.		19:30	The minutes' places flash.
5 Set the minutes with the UP and DOWN buttons.		19:30	The set places flash.
6 Press the ENTER/NEXT button		19:30	The display lights steadily and the clock starts to count from 0 seconds.

	11 Use the UP and DOWN buttons to set the hour at which the timer is to switch off.
	12 Press the ENTER/NEXT button.
	13 Use the UP and DOWN buttons to set the minutes at which the timer is to switch off.
	14 Press the ENTER/NEXT button.
	15 Press the TIMER STANDBY button.
	16 Press the SYSTEM POWER button.

	When the TIMER STANDBY button is pressed and the "•" mark is lit, the timer will function at the same times each day.
	To switch off the timer, press the TIMER STANDBY button and turn off the "•" mark.

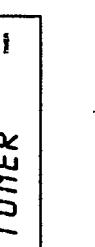
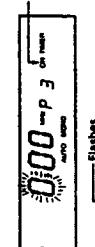
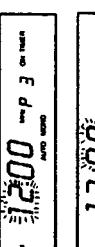
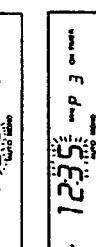
NOTE:

- The timer standby mark "•" will not light unless the current timer has been set. Should this be the case, set the current time, then press the TIMER STANDBY button.

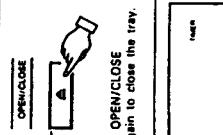
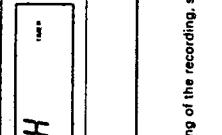


Setting the Timer

(Preset the MW, LW and FM stations in advance)

	1 Press the SYSTEM POWER button.
	2 Press the TIMER button.
	3 Press the UP and DOWN buttons to display "TUNER".
	4 Press the ENTER/NEXT button.
	5 Press the UP and DOWN buttons to set the preset number.
	6 Press the ENTER/NEXT button.
	7 Use the UP and DOWN buttons to set the hour at which the timer is to switch on.
	8 Press the ENTER/NEXT button.
	9 Use the UP and DOWN buttons to set the minutes at which the timer is to switch on.
	10 Press the ENTER/NEXT button.

GENERAL SECTION

Example 3: Unattended recording of radio broadcasts ("air checks")	
1	 <p>Press the SYSTEM POWER button to switch on the power.</p>
2	 <p>Press the tuner-preamp's SYSTEM POWER button to switch on the power. — Press the OPEN/CLOSE button again to open the tray.</p>
3	 <p>Press the UP and DOWN buttons of the tuner-preamp to display "AIR.CH".</p>
4	 <p>Follow steps 4 to 16 under "Setting the Timer" on Page 11.</p>

- Timer recording starts in the direction indicated by the tape direction indicator of deck 2.
- Check that the tape direction and REV MODE switch settings are as desired.
- The section of leader tape at the beginning of the tape cannot be recorded. To avoid missing the beginning of the recording, set the starting time to about 1 minute before the program is scheduled to start.

Checking the Timer Settings

To check the timer settings, switch on the power of the tuner-preamp, press the TIMER button, then press the ENTER/NEXT button. The timer start mode, reception band, preset number, on time, and off time are displayed in order each time the ENTER/NEXT button is pressed. One more press returns the receiver to the previous frequency. When the on time and off time have not been set, **0000** flashes and there is no transition to the next display.

Changing the Timer Settings

When the timer setting operation is repeated, the previous settings are deleted and the new settings are set.

Deleting the Timer Settings

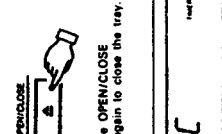
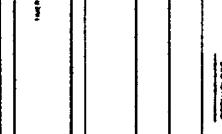
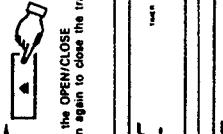
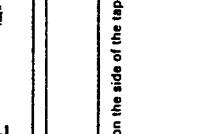
The timer settings can be cleared by pressing the TIMER button and then while **FUNC** is being displayed, pressing the TIMER button again or pressing the CLEAR button.

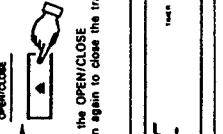
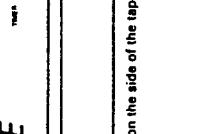
Note about the Set Timer

If the set time of the timer is reached while the power is on, the timer settings will take over and there will be a switch to the function that has been set on the timer.

Cancelling the Timer

Press the TIMER STANDBY button and the **①** mark will go off.

Example 1: Waking up to the music of a compact disc.	
1	 <p>Press the SYSTEM POWER button to switch on the power.</p>
2	 <p>Press the tuner-preamp's SYSTEM POWER button to switch on the power. — Press the CD player's OPEN/CLOSE button to open the tray.</p>
3	 <p>Press the UP and DOWN buttons of the tuner-preamp to display "CD".</p>
4	 <p>Follow steps 6 to 16 under "Setting the Timer" on Page 11.</p>

Example 2: Waking up to the music of a cassette tape.	
1	 <p>Press the SYSTEM POWER button to switch on the power.</p>
2	 <p>Press the tuner-preamp's SYSTEM POWER button to switch on the power. — Press the cassette deck's OPEN/CLOSE button to open the tray.</p>
3	 <p>Press the UP and DOWN buttons of the tuner-preamp to display "TAPE".</p>
4	 <p>Follow steps 6 to 16 under "Setting the Timer" on Page 11.</p>

- The tape will be played back in the direction indicated by the tape direction indicator in the tape deck on the side of the tape counter display.

GENERAL SECTION

8 CASSETTE DECK

Before Recording and Playback

(Use the remote control unit for these operations.)

Example: Setting the power to switch off in 50 minutes.

1	Currently receiving 87.50 MHz, FM. Press the remote control unit's SLEEP button.	"87.50" is displayed. "SLEEP" appears and flashes for 5 seconds.
2	Press the SLEEP button again while "SLEEP" is flashing.	"50" is displayed, and the frequency display (87.50) disappears after 5 seconds.

- If the sleep timer and regular timer settings overlap, the sleep timer is given priority.
- Do not press the TIMER STANDBY button after the power has been switched on with the timer. If this is done, the timer will not function properly.
- If the same time is set for the on time and off time, the power will not be switched on even when the "STANDBY" indicator is lit.
- If the timer is set for an AM or FM station and the on time of the timer is reached while listening to another station, the tuner switches to the station which was set with the timer.
- If the display is not normal, unplug the power cord, then holding in the MEMORY button and the BAND button, plug the power plug into the power outlet. This will reset the tuner to the initial settings and provide a proper display. If this is done, reset the preset stations, current time, and timer settings.

Auto Reverse

(This deck is equipped with an auto reverse mechanism, so cassette tapes can be played and recorded on both sides or played continuously without having to turn them over.)

Direction of tape travel

This deck has two play buttons, one for the forward direction (front side) and another for the reverse direction (back side). The side being played can be changed during playback by pressing the opposite play button.

Reverse mode

Set the reverse mode switch (REV MODE) as follows:

- Single-sided recording/playback mode (—)
- In this position, only the front side or the back side of the cassette tape is played or recorded. (The tape stops automatically when the end of that side is reached.)
- Two-side recording/playback mode (—)
- In this position, when the end of the front side is reached, recording or playback automatically switches to the back side and continues from there. (The tape stops automatically when the end of the back side is reached.)
- Continuous playback mode (—)
- When tape is loaded in only one of the decks, playback continues until the STOP button is pressed.
- Relay playback mode (—)
- When tapes are loaded in both decks, playback continues from deck 1 onto deck 2, and then back again, as shown in the diagram at the right.

Cassette Tapes

Cancelling the Sleep Timer

- To cancel the timer while it is operating in the sleep mode, press the SLEEP button, and while "SLEEP" is flashing, press the CLEAR button on the tuner-preamplifier.
- Press the SLEEP button and continue to press it until the power is switched off. When the power is switched off the sleep timer will be cancelled.

PLAY

Start from front side

Auto stop

Start from back side

Reverse

Auto stop

Start from front side

Auto stop

Start from back side

Reverse

Auto stop

Start from front side

Auto stop

Start from back side

Reverse

Auto stop

Start from front side

Auto stop

Start from back side

Reverse

Auto stop

Start from front side

Auto stop

Start from back side

Reverse

Auto stop

Start from front side

Auto stop

Start from back side

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Start from front side

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Auto stop

Start from front side

Auto stop

Start from back side

Reverse

Auto stop

Start from front side

Auto stop

Start from back side

Reverse

Auto stop

Start from front side

- Handling Precautions
 - C-120 cassette tapes
 - Avoid using 120-minute cassette tapes, since they have extremely thin tape which tends to become wound onto the capstans or pinch rollers.
 - If the tape is slack, it may become wound onto mechanism parts or otherwise damaged. Take up the slack with a pencil before loading the cassette.

- Protecting Cassette Tapes From Being Erased Accidentally
 - Avoid storing in the following places:
 - Hot, humid places
 - Dusty places
 - Places exposed to direct sunlight
 - Near magnetic fields (TVs, speakers, etc.)
 - Store the cassette tape in a case equipped with stoppers to keep the tape from coming slack.

- Storage Precautions
 - Avoid storing in the following places:
 - Hot, humid places
 - Dusty places

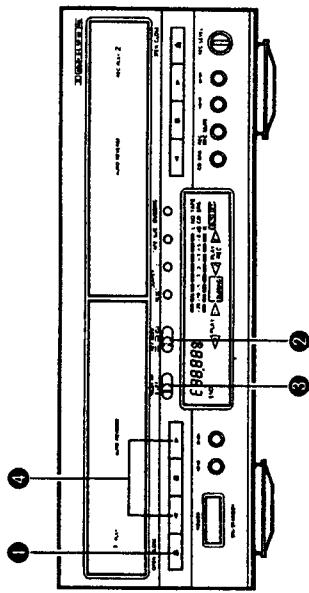
- Accidental erasure prevention tab for side A
 - To record on a cassette tape whose accidental erasure prevention tabs have been torn off, place a piece of cellulophane tape over the hole.

- Accidental erasure prevention tab for side B
 - To record on a cassette tape whose accidental erasure prevention tabs have been torn off, place a piece of cellulophane tape over the hole.

GENERAL SECTION

9 PLAYING CASSETTE TAPES

(Single Side Playback, Two-Side Playback, and Continuous Playback)



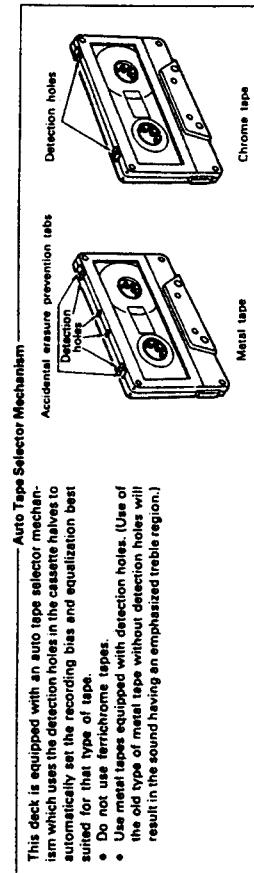
- Functions common for deck 1 and deck 2.
When operating from the remote control unit, the operation switches between deck 1 and deck 2 each time the **DECK 1/2** button is pressed. The counter indicator (① or ②) lights for the selected deck.

NOTE: Using the Tape Counter (Linear Tape Counter):

- This counter displays the elapsed running time of the tape in minutes and seconds.
- The counter can be reset to 00:00 by pressing the COUNTER RESET button. Or, the counter will also be reset when the tape is loaded or unloaded.
- Making a memo of the contents of a recording and the range of the counter numbers while you are recording or playing back a tape will be convenient when you search for a portion of the tape to which you would like to listen.

NOTE: Using the Tape Counter (Linear Tape Counter):

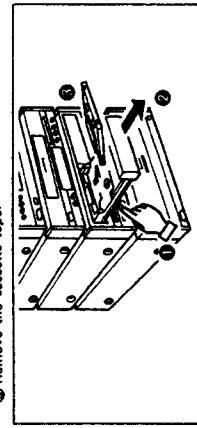
- This deck's linear tape counter has been set for the following cassette tape lengths: C45, C50, C54, C60, C74, C80, C100, C120, C145, and C160. (L indicates large hubbed cassettes.) Using a tape that lies outside of this range, or a tape with a different length than the displayed length, will result in error. When using a tape that is not included in the TAPE SIZE Selection, select the tape size closest to the length of the tape to be used. (This will reduce the error.)
- The linear tape counter is not accurate like a clock. The thickness of the tape will differ depending on the type of tape used (tape position and time), and so there will be some error introduced. Error also arises from the difference between tapes with smaller and larger hubs, and shows up in the remaining tape display (END mark).



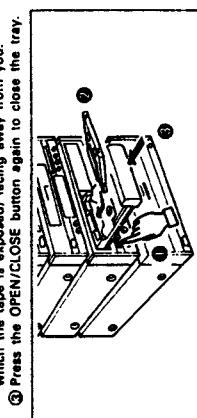
Before Operating

Loading and Unloading Cassette Tapes (Common for Deck 1 and Deck 2)

- **Unloading**
 - ① Press the OPEN/CLOSE button (▲) to open the cassette tray.
 - ② Set the tape in the cassette tray with the open side (on which the tape is exposed) facing away from you.
 - ③ Press the OPEN/CLOSE button again to close the tray.



- **Loading**
 - ① Press the OPEN/CLOSE button (▲) to open the cassette tray.
 - ② Set the tape in the cassette tray with the open side (on which the tape is exposed) facing away from you.
 - ③ Remove the cassette tape.



- Load the cassette tape on an angle with the open side facing away from you. Loading it in the opposite direction can cause damage.
- Do not press the OPEN/CLOSE button during playback or recording. Always press the STOP button before pressing the OPEN/CLOSE button.

NOTE: Loading the cassette tape with the open side facing away from you. Loading it in the opposite direction can cause damage.

- This is the head sliver?...
1. Is the head dirty?...
The sound quality will be poor if the head is dirty. Refer to Page 21.
- 2. Are the accidental ensure prevention tabs broken off?...
Recording is not possible if these tabs are broken off. Refer to Page 13.

- This deck is equipped with an auto tape selector mechanism which uses the detection holes in the cassette halves to automatically set the recording bias and equalization best suited for that type of tape.
- Do not use ferrichrome tapes.
- Use metal tapes equipped with detection holes. (Use of the old type of metal tape without detection holes will result in the sound having an emphasized treble region.)

GENERAL SECTION

PLAYING CASSETTE TAPES

Using the MS (Music Search) Function and the Music Search Display

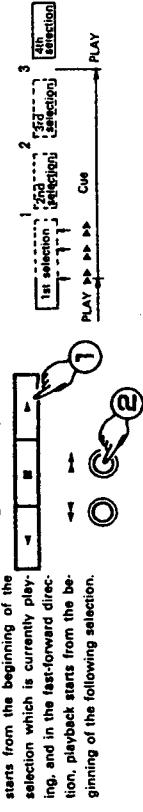
Using the MS (Music Search) Function

- Use this function to move to the beginning of the following section or return to the beginning of the current selection.

① Press ▶ or ▶.

② Press ▶ or ▶.

- In the rewind direction, playback starts from the beginning of the selection which is currently playing, and in the fast-forward direction, playback starts from the beginning of the following selection.

**Display During the Music Search Operation**

During the music search operation, the number of selections being skipped is indicated on the tape counter, and this number decreases each time a blank section is detected (for example, 3 → 2 → 1).

- When skipping back to a previous selection

P-03 — Number of tracks to be skipped

↑ This lights when skipping backward

- When skipping ahead to a following selection

P 05 — Number of tracks to be skipped

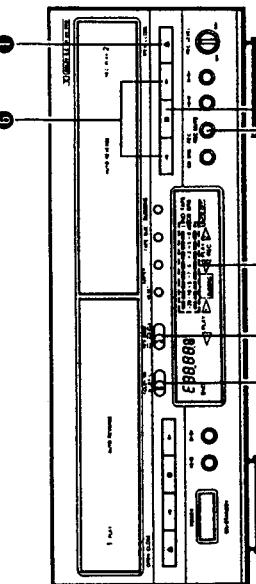
↑ This lights when skipping forward

Adjustment of the Recording Input Level Control

Too high a recording level will result in a recording which has a high degree of distortion, whereas too low a recording level will result in a high degree of noise. Adjustment of the recording input level is of the utmost importance in making a well-balanced recording.

Guide to Recording Input Levels

Type I (normal) tapes	0 dB
Type II (CrO ₂) tapes	+3 dB
Type IV (metal) tapes	+3 dB

10 RECORDING CASSETTE TAPES

- The positions of the VOLUME and tone controls do not affect the sound being recorded.

1	Press the OPEN/CLOSE button ▲ for deck 2 and load the tape to which you will record. Refer to Page 14.	OPEN/CLOSE
2	Set the REV MODE switch to □ or □. Refer to Page 13.	REV MODE
3	Set the DOLBY NR switch. Refer to Page 6. ①	DOLBY NR SILENT
4	Recording from the radio Press the BAND selector button.	Recording from a CD player FUNCTION
5	Recording from a VDP or DAT Press the tuner-preamplifier's FUNCTION button and select PHONO or DAT.	Recording from a CD player Set the disc in the CD player. (Refer to Page 16.)
6	Press the REC/MUTE button. Select the station you wish to record. (Refer to Page 9.)	REC REC MUTE REC LEVEL REC LEVEL Adjust the lighting condition of the level meter with the recording level control. Refer to the section on Page 15.
7	To stop recording, press the stop button.	Press the CD SRS button The CD SRS indicator lights. Press the CD SRS button. The CD SRS indicator lights and recording starts.

NOTE:

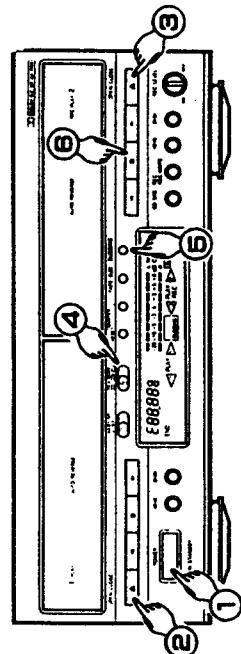
The optimum recording level will actually differ depending on the source and the type of tape, and so a trial recording should be made.

RECORDING CASSETTE TAPES

- Making a Synchro Dubbing (Copy)

Synchro dubbing (tape copying) can be made at regular speed from deck 1 to deck 2.

Press the SYSTEM POWER button of the tuner-preampifier.



① Press the SYSTEM POWER button of the tuner-preampifier or press the POWER ON/STANDBY button of the deck.

② Press the OPEN/CLOSE (▲) button and load the tape to be played back in deck 1.

③ Press the OPEN/CLOSE (▲) button and load the tape to be recorded back in deck 2.

④ Set the reverse mode with the REV MODE switch.

⑤ Press the DUBBING (synchro dubbing) button. Note that if the POWER ON/STANDBY button of the deck is pressed to switch on the power, the power of the tuner-preampifier will automatically be switched on when the DUBBING button is pressed. You will be able to hear the audio normally. The tape will automatically stop when it reaches the end and the synchro dubbing mode will be cancelled.

⑥ Recording level during synchro dubbing
During the recording, the recording is made at the same level as the playback tape of deck 1, regardless of the position of the recording level control. Note that when the recording tape and the playback tape are of different types, the recording level might be different and so synchro dubbing should be done with the same type of tape if possible.

Dolby NR mode during synchro dubbing

The Dolby NR system is automatically disengaged from the panel switch during synchro dubbing (even though the display does not change) and the tape is recorded with the Dolby NR mode of the playback tape.

⑦ You can listen to the sound of another source while synchro dubbing.
Changing the source with the FUNCTION button or the CD play button will not interrupt the synchro dubbing.

⑧ When synchro dubbing, both decks begin running in the forward direction (from the A side).

⑨ The synchro DUBBING button is effective in starting the operation only when both tapes are in the stopped condition.

⑩ The following buttons do not function during the synchro dubbing operation: forward play ▶, fast forward ▶▶, rewind ▶◀, and REC/REC MUTE.

⑪ To ensure complete reproduction, use the same length of recording tape as the playback tape, and rewind both tapes to the beginning of side A before starting the dubbing operation.

⑫ By setting the REV MODE switch to the ▶ or ▶▶ position, when the playback tape of deck 1 reverses at the end of the tape on side A, the deck 2 tape will reverse at the same time and dubbing can continue on side B.

11 PLAYING CDS

Compact Discs

- Press the OPEN/CLOSE button (▲) once to open the disc tray, once again to close it.
- The disc tray can also be closed by pressing the play (▶) button.
- When this is done, playback automatically starts from the first track on the disc (or if the tracks are programmed, the first programmed track).
- Load the disc with the label side facing up, being careful not to touch the disc surface.
- Load the disc with the disc tray open all the way.

- Set the disc securely in the tray glide at the center of the disc tray.
- To play an 8 cm disc, place the disc in the sunken part at the center of the disc tray.
- When the disc tray is closed, the disc turns automatically for several seconds, and the number of tracks and total playing time appear on the display.

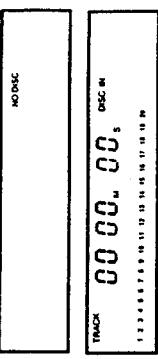


■ When removing the disc from its case:
As shown in the diagram, grasp the disc along the edges, gently press down on the hole in the middle with a finger, and lift the disc. It should come out easily.

DISC	REMARKS
CD	
CDV	Only the audio part is played.
CD single (8 cm)	

- For CDs, only the audio part is played (the video part is not played).

- NOTE:
"NO DISC" is displayed on the display window when no disc is loaded, when the disc is loaded upside-down, or when the disc is not properly loaded. Also, "00.00," may appear during playback of a CD if the disc is scratched or dirty. If this happens, the set will not operate when a normal operating button (other than the OPEN/CLOSE button) is pressed, so press the OPEN/CLOSE (▲) button, remove the disc, clean it as necessary, then press the PLAY (▶) button again.

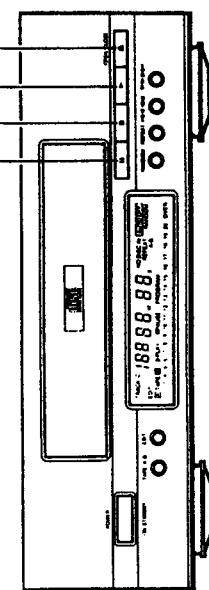


track 00 00 00 s
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

GENERAL SECTION

Various CD Play Functions

(Insert the disc before performing the following operations.)



Example: Playing a CD with 15 tracks and a total playing time of 62 minutes 03 seconds, starting from track 1

1	Press the OPEN/CLOSE button.	
2	Set the CD in the disc tray. Refer to Page 16.	
3	Press the OPEN/CLOSE button.	
4	Press the play button.	
	To stop play temporarily:	
5	Press the pause button.	
6	Press the play button.	
	To resume CD play:	
7	Press the stop button.	

NOTE:	• 00 is displayed on the track number section of the display for several seconds after the disc is set, while the data on the number of tracks, playing time, etc., is being read from the disc. After this, the number of tracks and total playing time appear.
1st time	Press the REPEAT button during CD play.
2nd time	Press the REPEAT button before CD play or during CD play.
3rd time	Press the REPEAT button during CD play.
4th time	Pressing the REPEAT button once again returns the player to regular CD play.

DIRECT SELECTION

- ① Press the DIRECT button.
- ② Press track button "3". "TRACK 8" appears on the display, and the 8th track begins playing.
- When the end of the track is reached, play continues on to the next track.
- For track number 20, press **[+10]** and **[10]**.

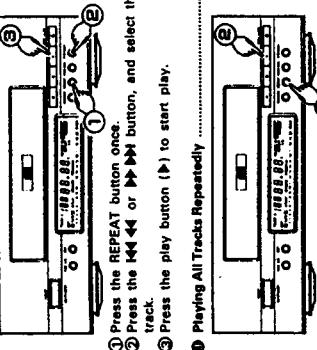
1 TRACK REPEAT

- For track numbers of 11 and higher, for example 15, press **[+10]** and **[5]**. For track numbers of 20 and higher, for example 23, press **[+10]**, **[2]**, and **[3]**. For track number 20, press **[+10]** and **[10]**.
- When the specified track finishes playing, the pickup returns to the beginning of that track and play is repeated.
- If the REPEAT button is pressed once during play, the track will be played repeatedly.
- If the REPEAT button is pressed once during programmed play, the track will be played repeatedly.
- If the REPEAT button is pressed once while the disc is stopped, the TRACK numbers indicator flashes and the 1 track repeat play mode is set.

ALL TRACKS REPEAT

- When the last track finishes playing, the pickup returns to the first track of the disc and play is repeated.
- If the REPEAT button is pressed twice during play, the disc will be played repeatedly.
- If the REPEAT button is pressed twice during programmed play, the program will be played repeatedly.
- If the REPEAT button is pressed twice while the disc is stopped, the TRACK numbers indicator lights and the all tracks repeat play mode is set.

PLAYING ALL TRACKS REPEATEDLY



- ① Press the REPEAT button once.
- ② Press the **[M4]** or **[M5]** button, and select the desired track.
- ③ Press the play button (**[P]**) to start play.

SECTION REPEAT

- Example: The CD has a total of 15 tracks
- (1) Press the REPEAT button during CD play.
- (2) Press the REPEAT button before CD play.
- Press the REPEAT button before CD play or during CD play.
- Press the REPEAT button during CD play.
- Press the REPEAT button during CD play.
- Press the REPEAT button during CD play.

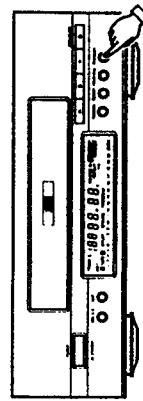
- "REPEAT A-B" lights up.
- If nothing else is done, all tracks are played repeatedly.
- "REPEAT A-B" lights up.
- The A-B section is played repeatedly.

Pressing the REPEAT button once again returns the player to regular CD play.

GENERAL SECTION

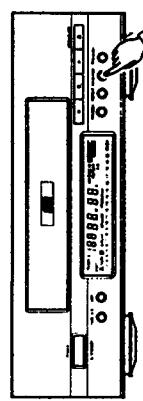
QUICK SEARCH

- ① Press the auto search forward button (▶▶).
 • Each press of the auto search forward button (▶▶) moves the pickup to the beginning of following tracks.



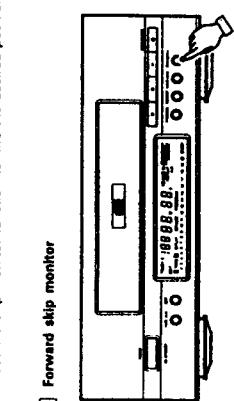
QUICK SEARCH

- ① Press the auto search backward button (◀◀).
 • Each press of the auto search backward button (◀◀) during the search operation moves the pickup to the beginning of previous tracks.



QUICK SEARCH

- ① Press the auto search backward button (◀◀◀◀).
 • Each press of the auto search backward button (◀◀◀◀) during the search operation moves the pickup to the beginning of previous tracks.



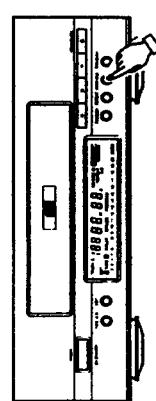
QUICK SEARCH

- ① Press the auto search backward button (◀◀◀◀).
 • Each press of the auto search backward button (◀◀◀◀) during the search operation moves the pickup to the beginning of previous tracks.



QUICK SEARCH

- ① Press the auto search backward button (◀◀◀◀).
 • Each press of the auto search backward button (◀◀◀◀) during the search operation moves the pickup to the beginning of previous tracks.



QUICK SEARCH

- ① During CD play, press and hold in the forward search button (▶▶) to skip forward while listening to the sound.

QUICK SEARCH

- ① During CD play, press and hold in the backward search button (◀◀) to skip backward while listening to the sound.

- If the forward or backward skip button is pressed during programmed CD play and released at a track which has not been programmed, the next programmed track will be played once that track has been played to the end.

PROGRAMMED SELECTION

PROGRAMMED SELECTION

- ① Playing Certain Tracks in any Desired Order
 (Perform this operation from the remote control unit.)

Example: Programming track 3 to play first, track 18 to play second, on a CD with 18 tracks and a total playing time of 62 minutes, 3 seconds

Setting and Playing the Program (Set the Slide Switch to the "MAIN" Side.)

1 Press the PROGRAM button.	
2 Set track 3 to play first.	
3 Set track 18 to play second.	
4 Press the play button.	

- The numbers of the programmed tracks go off once the tracks are played.
 — M — S If a track number of 31 or higher is set in the program.
- When a program is set during CD play after a direct selection, the track currently playing is set as the first track in the program.
- Up to 20 tracks of your choice from among track numbers 1 through 99 can be programmed with this CD player.
- If you attempt to set a track number that is greater than the number of tracks on the disc, that track number will not be displayed when the buttons are pressed.
- Programming is also possible when the disc tray is open. In this case, track numbers greater than the number of tracks on the disc can be programmed, but these are ignored when the disc is played.
- There is a silent interval of 4 seconds between tracks. This is has been designed to create a blank section of 4 seconds between selections when recording programmed tracks onto tape.
- The entire program is cleared when the disc tray is opened or closed (by pressing the ▲ button).
- If you make a mistake when programming tracks, press the CANCEL button and program again. (Each press of the CANCEL button cancels the last track.)
- An A-B section repeat is not possible during programmed play.
- Other operations possible during programmed play:
 The quick search, pause, skip monitor, and other operations can be used during programmed play. To move to the beginning of the previous track with the quick search operation, press ▶▶ once, then once again while the time display reads '00' or '00'. To move to the beginning of the following track, press ▶▶ once, regardless of the line display.

- Perform programming and canceling in the stop mode.

- During CD play, press and hold in the forward search button (▶▶) to skip forward while listening to the sound.
- During CD play, press and hold in the backward search button (◀◀) to skip backward while listening to the sound.

- If the forward or backward skip button is pressed during programmed CD play and released at a track which has not been programmed, the next programmed track will be played once that track has been played to the end.

GENERAL SECTION

RANDOM SEARCH

② Playing Tracks in Random Order

- Pressing the RANDOM button when a program has been set will play the programmed tracks in random order.
- Pressing the RANDOM button when repeat play has been set will play the tracks through randomly one time, and each time following this there will be a random search with a different pattern.
- An A-B section repeat is not possible during random play.
- During the search operation, the track numbers of the disc from track 1 to the last track will be repeatedly displayed at high speed in the TRACK NO. section, and the following tracks to be played will not be known from the end of the search to the time CD play begins.
- Pressing the RANDOM button when 1-track repeat has been set will automatically change the setting to all tracks repeat and these tracks will be played randomly.

NOTE:
Random play is not possible during the edit operation.

③ Edited Recording onto Sides A and B of a Tape (EDIT)

Editing is possible with CDs containing up to 20 tracks.

Before starting the edited recording operation, load the cassette tape to which you will record into deck 2 with side A facing up. The laser tape is automatically taken up before recording starts. (Set the REV MODE switch to the  position.)

④ Automatic Edited Recording

Example: Recording a disc with 18 tracks and a total playing time of 56 minutes onto a C-60 cassette tape

1. Press the OPEN/CLOSE button. → Set the disc. → Press the play button and set the function to CD. → Press the stop button.

2. Example: For a 36-minute tape, use the  or  button to set 36. To set the tape length using the remote control unit, use the number buttons. For example, in the case of a 30-minute tape, press  twice and press .

If you make a mistake, press the EDIT button to display C-00, then start over again.

3. The display changes between sides A and B each time the TAPE  or  button is pressed. (Use this to check the extra time on side B.)

4. Press the play button.

RECORDING IN THE SAME ORDER AS ON THE DISC

1. TRACK 18 56 00 s

2. TRACK 01 01 21 s

RECORDING CERTAIN TRACKS IN ANY DESIRED ORDER

① Follow the instructions under "PROGRAMMED SELECTION" on Page 18 to program the tracks.

② Perform steps 2 through 4 under the aforementioned "Automatic Edited Recording".

⑤ Programmed Edited Recording

⑥ Follow the instructions under "PROGRAMMED SELECTION" on Page 18 to program the tracks.

⑦ Press the PROGRAM button of the remote control unit, then light up the "PROGRAM" indicator. When the disc is stopped, programming can be done with the search buttons  or  on the CD player or with the search buttons  or  on the remote control unit.

⑧ Select the tracks with the search buttons, then press the PROGRAM button to program them.

- The search buttons ( or ) can be used to change the track numbers continuously.
- After the track numbers have been selected with the search buttons, if the play button is pressed to start CD play before the PROGRAM button is pressed, the last track of the program set up to this point will be played.
- In this case, the tracks selected with the search buttons will not be programmed.

RANDOM SEARCH

② Playing Tracks in Random Order

- Pressing the RANDOM button when a program has been set will play the programmed tracks in random order.
- Pressing the RANDOM button when repeat play has been set will play the tracks through randomly one time, and each time following this there will be a random search with a different pattern.
- An A-B section repeat is not possible during random play.
- During the search operation, the track numbers of the disc from track 1 to the last track will be repeatedly displayed at high speed in the TRACK NO. section, and the following tracks to be played will not be known from the end of the search to the time CD play begins.
- Pressing the RANDOM button when 1-track repeat has been set will automatically change the setting to all tracks repeat and these tracks will be played randomly.

NOTE:
Random play is not possible during the edit operation.

③ Edited Recording onto Sides A and B of a Tape (EDIT)

Editing is possible with CDs containing up to 20 tracks.

Before starting the edited recording operation, load the cassette tape to which you will record into deck 2 with side A facing up. The laser tape is automatically taken up before recording starts. (Set the REV MODE switch to the  position.)

④ Automatic Edited Recording

Example: Recording a disc with 18 tracks and a total playing time of 56 minutes onto a C-60 cassette tape

1. Press the OPEN/CLOSE button. → Set the disc. → Press the play button and set the function to CD. → Press the stop button.

RECORDING IN THE SAME ORDER AS ON THE DISC

1. TRACK 18 56 00 s

2. TRACK 01 01 21 s

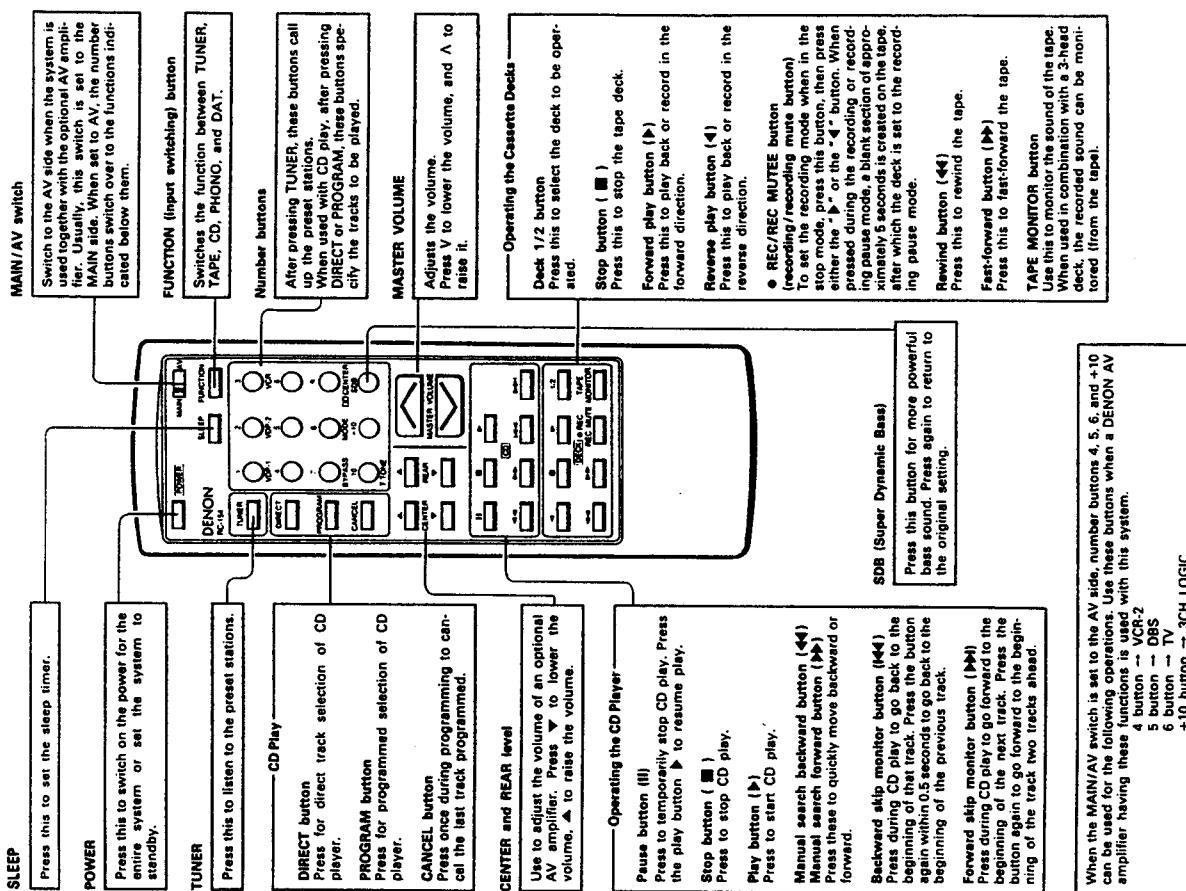
RECORDING CERTAIN TRACKS IN ANY DESIRED ORDER

① With edited recording, side B of the tape will be recorded automatically even when the REV MODE switch of the deck is set to the  position.

- During edited recording, only the following buttons will function: the stop button of the CD or the OPEN/CLOSE button, and the stop button of the deck.
- When using a recorded tape for edited recording, the tape should be erased before use, since when the tape is longer than the set time, an unrecorded section of side B will remain after the tape stops.
- When a tape which has been recorded with this system is played back, the will be a second blank portions between tracks (for making it easy to reach the beginning of a track). This will differ from the actual silent portions between the tracks on the disc, and so there will be some error in the actual remaining time of the tape and the displayed time.

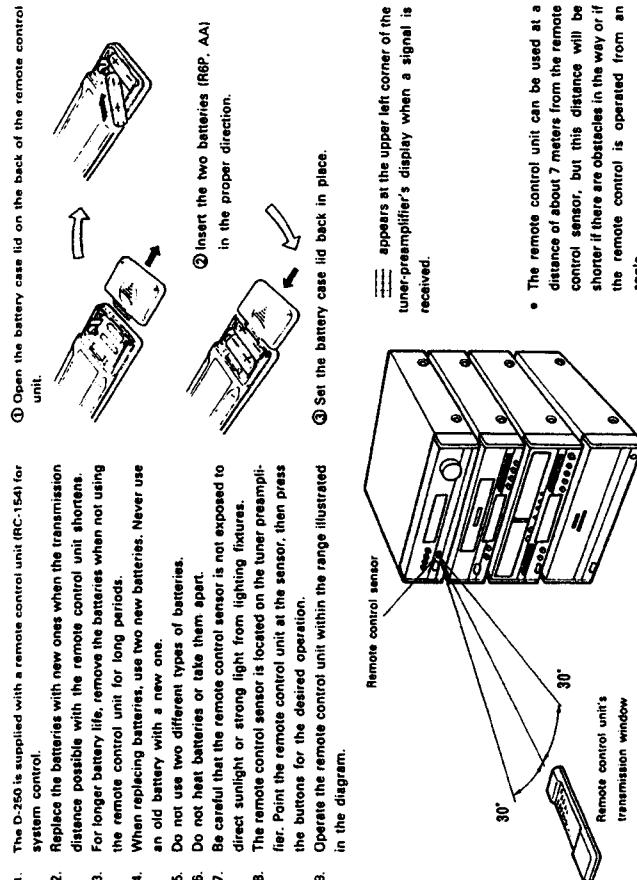
GENERAL SECTION

Button Names and Functions



12 REMOTE CONTROL UNIT

Inserting the Batteries



- The D-250 is supplied with a remote control unit (RC-154) for system control.
- Replace the batteries with new ones when the transmission distance possible with the remote control unit shortens.
- For longer battery life, remove the batteries when not using the remote control unit for long periods.
- When replacing batteries, use two new batteries. Never use an old battery with a new one.
- Do not use two different types of batteries.
- Do not heat batteries or take them apart.
- Be careful that the remote control sensor is not exposed to direct sunlight or strong light from lighting fixtures.
- The remote control sensor is located on the tuner preamplifier. Point the remote control unit at the sensor, then press the buttons for the desired operation.
- Operate the remote control unit within the range illustrated in the diagram.
- Do not press buttons on the remote control unit and on the main unit at the same time. Doing so will lead to a malfunction.
- If ■ appears on the tuner-preamplifier's display due to incident light even though the remote control unit has not been operated, it is best to move the set or place it in a different direction. Even if this happens, it will not cause a malfunction with remote control unit.
- When adjusting the volume continuously with the remote control unit, the volume adjustment will stop if the remote control unit is moved away from the remote control sensor. Should this happen, press the button again to continue changing the volume.
- Do not press buttons on the remote control unit and on the main unit at the same time. Doing so will lead to a malfunction.
- If ■ appears on the tuner-preamplifier's display due to incident light even though the remote control unit has not been operated, it is best to move the set or place it in a different direction. Even if this happens, it will not cause a malfunction with remote control unit.
- When adjusting the volume continuously with the remote control unit, the volume adjustment will stop if the remote control unit is moved away from the remote control sensor. Should this happen, press the button again to continue changing the volume.

13 AUTO ON/OFF FUNCTION

- When the CD or deck play button, or the OPEN/CLOSE button is pressed from the standby mode, the power is switched on automatically, and the play or open/close operation is performed. The "AUTO OFF" indicator lights at this time.
- When play ends in this mode and there are no operations for 10 minutes, the power is automatically switched off and the system enters the standby mode. If there is no disc or cassette in the system, the power will be switched off in about 1 minute.
- When the disc tray or the cassette tray is open, the tray will close in about 1 minute.
- When the tuner number buttons (presses numbers) are pressed, the power will be switched on in the same way and the system will enter the auto off mode. In this case, the "TUNED" indicator will go off and 10 minutes later the power will be switched off.

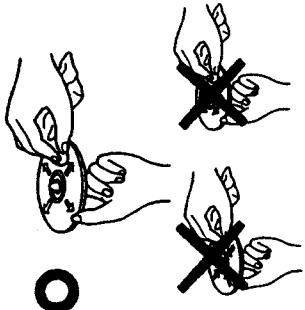
15 SPECIFICATIONS

- Tuner-preamplifier (UPO-250)**
 - Reception Frequency Range: FM: 87.50 MHz to 108.00 MHz
AM: 522 kHz to 1611 kHz (MW), 153 kHz to 279 kHz (LW)
 - Receiving Sensitivity: FM: 1.5 uV 75 ohms (SN ratio 30 dB)
AM: 20 uV (SN ratio 20 dB, MW), 35 uV (SN ratio 20 dB, LW)
 - FM Stereo Separation: 40 dB (1 kHz)
 - Bass Adjustment: 100 Hz ±5 dB
 - Treble Adjustment: 10 kHz ±5 dB
 - Super Dynamic Bias: 80 Hz +8 dB
 - PREDUT: Output jacks
 - PHONE: Input jacks
 - DAT: Input jacks, recording output jacks
 - Processor: Processor input/output jacks
 - Dimensions (max.): 270 (W) × 86 (H) × 330 (D) mm (10 5/8" × 3 25/64" × 13")
 - Weight: 3.2 kg (7 lbs 10 oz)
 - Power Supply: AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
 - Amplifier (UPO-250):
 - Rated Output Power: 50 W +50 W (20 Hz to 20 kHz, 8 ohm)
 - Jacks: 6.3 mm headphone jack
 - Dimensions (max.): 270 (W) × 96 (H) × 330 (D) mm (10 5/8" × 3 25/32" × 13")
 - Weight: 4.1 kg (9 lbs 1 oz)
 - Power Supply: AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
 - CD Player (UCD-250):
 - Wave and Flutter: 140 W
 - Sampling Frequency: Below measurable limits (±0.001% W. Peak)
 - Light Source: 44.1 kHz Semiconductor
 - Dimensions (max.): 270 (W) × 86 (H) × 313 (D) mm (10 5/8" × 3 25/64" × 12 21/64")
 - Weight: 3.1 kg (6 lbs 13 oz)
 - Power Supply: AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
 - 15 W
 - Cassette Deck (UDR-W-250):
 - Type: Horizontal 4-track, 2-channel auto reverse stereo cassette deck
 - Heads: 1 hard permalloy recording/playback head, 1 hard permalloy playback head, and 1 tubular-gp ferrite erase head
 - Dimensions (max.): 4.75 cm/s
 - Tape Speed: Dolby B and C NR
 - Noise Reduction Circuits: Normal, chrome, and metal tapes
 - Usable Tape: 270 (W) × 96 (H) × 318 (D) mm (10 5/8" × 3 25/32" × 12 33/64")
 - Dimensions (max.): 4.4 kg (9 lbs 11 oz)
 - Weight: AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
 - Power Supply: 18 W
 - Remote Control Unit (RC-154):
 - Type: Infrared pulse
 - Power Consumption: 41 (including 1 slide switch)
 - Number of Buttons: 60 (W) × 177 (H) × 18 (D) mm (20 23/64" × 6 31/32" × 45/64")
 - Dimensions (max.): 130 g (Approx. 6.4 oz) (including batteries)
 - Weight: * Minimum dimensions include controls, jacks, and covers. (W) = width; (H) = height; (D) = depth

- Never use the following to clean discs:
- Solvents such as benzene or alcohol
 - Cleaners containing abrasives
 - Record sprays or cleaners
 - Anti-static products

14 IMPORTANT INFORMATION

- Head Demagnetizing**
 - The heads become magnetized after the deck has been used over a long period of time or if the heads are exposed to a magnetic field. This results in noise and reduced tape. In addition, there may be a reduction of the treble range of recorded tapes as well as noise produced on these tapes.
 - When the heads become magnetized, use one of the cassette tape head demagnetizers (erasers) available on the market to demagnetize the heads.
 - For details, read the operating instructions of the demagnetizer.
- Head Cleaning**
 - After the cassette deck has been used for a while, powder from the tape and dirt adhere to the head and lower the sound quality. Use a head cleaning cassette tape to clean.
 - NOTE:** Some of the cleaning sets on the market have a strong polishing effect which can damage the head.
- Disc Cleaning**
 - Dust, fingerprints, or spindle on the disc can cause noise or skipping.
 - If the disc is dirty or if the player does not work properly, clean the disc as follows:
 - Hold the disc as shown in the diagram with the signal surface facing up (and the labelled side facing down).
 - Using a soft cloth, wipe the disc gently from the inside straight towards the edges (as shown by the arrows).
 - Do not wipe from the edges towards the center, or around the disc as you would wipe records.
 - Do not use hard cloths or rub the disc forcefully, since the signal surface is susceptible to scratches.



* For improvement purposes, specifications and functions are subject to change without advanced notice.

16 TROUBLESHOOTING

1. Check that the connections are proper.
 2. Check that you are operating the system according to the instructions in the manual.
- Check the following table if the system does not seem to be working properly.
If the problem is not solved after checking these points carefully, the system may be malfunctioning. Switch off the power and contact your store of purchase.

Normal operations may not be possible if there is dirt or other substances on the surface of the internal objective lens or sensor.
These parts must be cleaned periodically depending on the place of installation.
For details, contact your store of purchase.

	Symptom	Cause	Measures	See Page
COMMO	Power does not come on when POWER button pressed.	• Power cord not plugged into outlet.	• Plug cord into outlet properly.	5
deck	No sound produced from speakers.	• VOLUME control set to minimum. • Headphones are plugged in. • Speaker cables not connected to speaker terminals.	• Turn VOLUME control clockwise (↗). • Disconnect headphones. • Connect speaker cables properly.	6
Tuner	Sound is interrupted during playback and recording, or while sound is low.	• Speaker polarities (+ and -) not matched.	• Set speaker cables properly.	5
CD Player	Cannot record when REC/REC MUTE button pressed.	• Function selector button not set properly. • No cassette tape loaded. • Accidental erasure prevention tabs of cassette broken off.	• Set to desired function. • Load tape. • Apply cellophane tape over holes.	6
	Buzzing noise heard during playback.	• Head dirty. • Tape stretched.	• Clean. • Replace tape.	21
	Hissing noise heard during FM reception.	• Antenna not pointed in proper direction. • Signals weak.	• Separate TV from system. • Turn off TV.	-
	Hissing or scratchy noise heard during AM reception.	• Noise from TV, etc., or interference from other stations.	• Change direction of antenna. • Install outdoor antenna.	4
	Hum noise heard during AM reception.	• Signals coming over power cord are modulated by power source frequency.	• Turn off TV. • Change position of loop antenna. • Install outdoor antenna.	4
	Disc loaded but total number of tracks not displayed.	• Disc loaded upside-down. • Non-standard disc loaded.	• Reload disc. • Clean disc. • Replace with standard disc.	16
	Operation not performed when buttons pressed, or playback stops in middle of track.	• Disc loaded upside-down. • Foreign object in disc holder. • Disc dirty. • Disc scratched.	• Reload disc. • Remove disc and remove foreign object. • Clean disc. • Replace with non-scratched disc.	16 16 21
	Sound skips.	• Dust, fingerprints, or spindle on disc. • Player set in shaky, unstable place.	• Clean disc. • Replace with non-scratched disc. • Set player in stable place.	21 -
	Buzzing noise mixed in with CD sound.	• Signals coming over power cord are modulated by power source frequency.	• Plug in cord in opposite direction.	5

GENERAL SECTION

Avoid using ultrasonic humidifiers nearby.
If ultrasonic humidifiers are used nearby, the calcium, etc., included in the water may be scattered into the air, causing white dust to accumulate on the surface of the objective lens or sensor, resulting in improper operation.

When Condensation Forms
The signals of the disc may not be read and this product will not operate properly. To remove the condensation, take out the disc and switch on the power. The condensation will evaporate within 1 hour and the set will operate normally.

Dew (Condensation) Phenomenon
Dew (water droplets) may form on the lens of the internal optical system or on the disc, or on the rotating parts of the tape deck in situations such as the following:

- Soon after a heater is put on.
- When the set is placed in a steamy or damp room.
- When the set is moved from a cold place to a warm room.

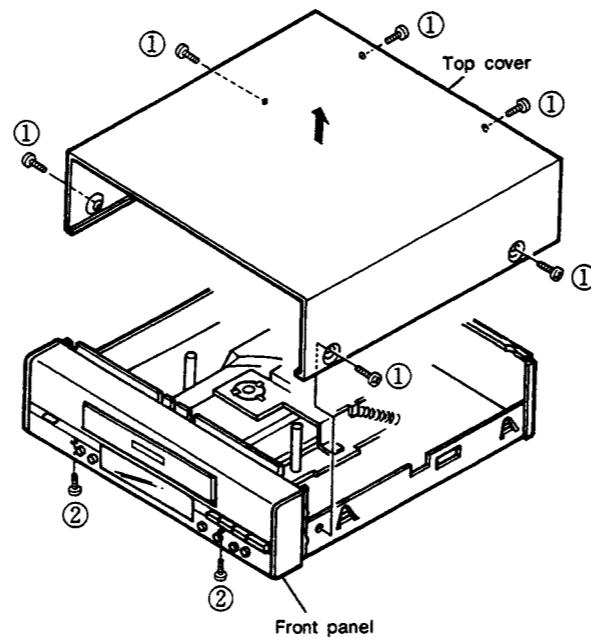
This system consists of precision components using microprocessors. Avoid using it in places where there is much external noise. If used in such places, the system may not operate properly, but this is not a problem with the system. If the system does not operate properly, try performing the desired operation again.

DISASSEMBLY PROCEDURES

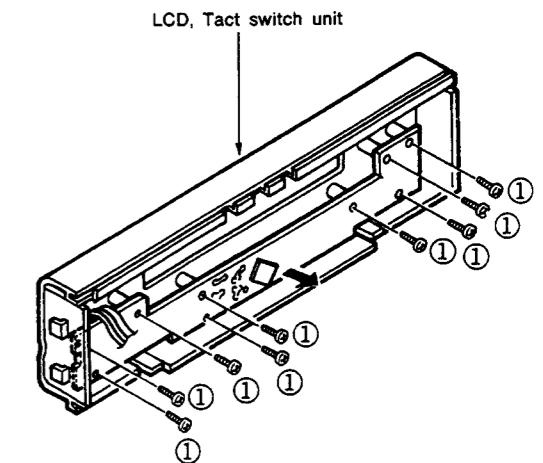
(Follow these procedures in reverse order to reassemble.)

1. Removing the top cover and front panel

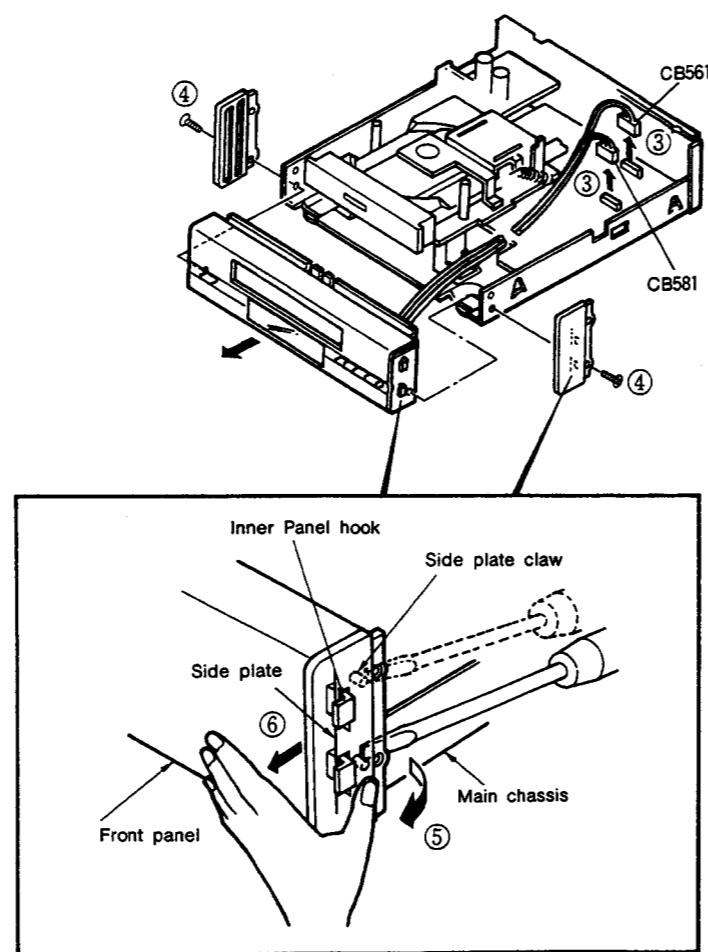
- ① Remove the 6 screws which fasten the top cover.
- ② Remove the 2 screws of the bottom side which fasten the front panel.

**2. Removal of the Various Boards****LCD TACT SWITCH UNIT 1U-2478-2**

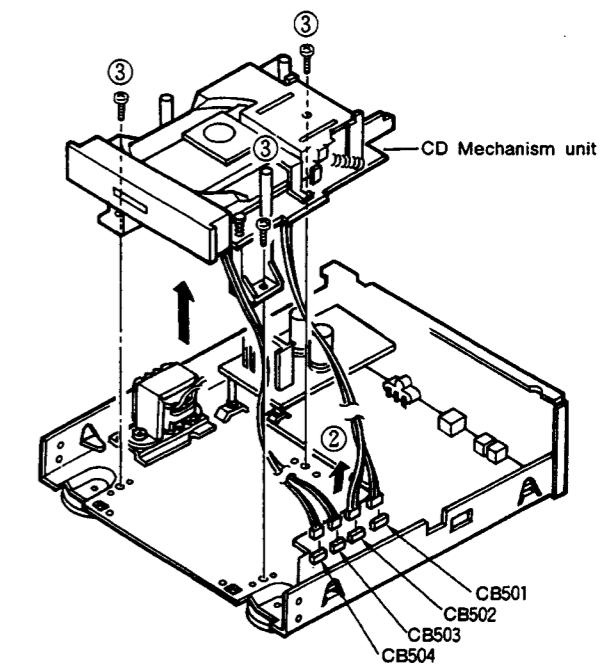
- ① Remove the 9 screws which fasten the LCD Tact switch unit and remove the board in the direction of the arrow.



- ③ Disconnect connectors CB561 and CB581 which are attached to the main unit.
- ④ Remove the 2 screws which fasten the side plate.
- ⑤ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver).
- ⑥ Use your fingers to push out the hook of the inner panel from the side plate in the direction of the arrow.
Using the same method for the left side, remove the side plate.
Remove the front panel in the direction of the arrow.

**3. Removal of the CD Mechanism Unit**

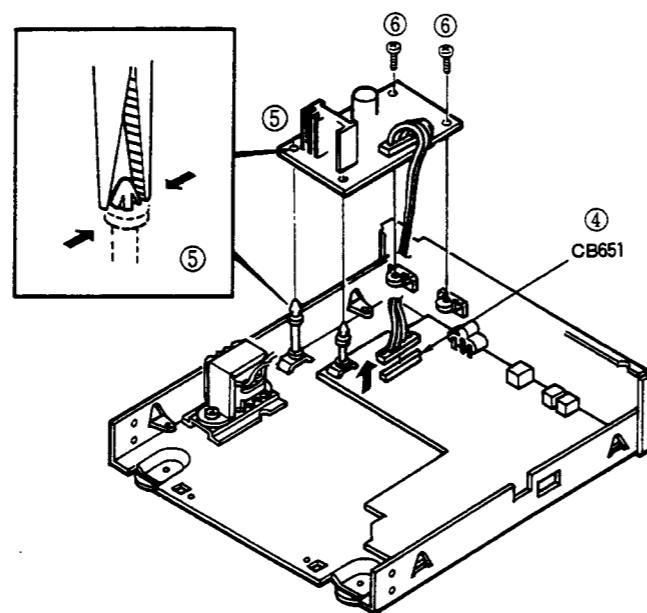
- ② Disconnect connectors CB501, CB502, CB503, and CB504 which are attached to the main unit.
- ③ Remove the 3 screws which fasten the CD mechanism unit and remove the mechanism unit in the direction of the arrow.



CD PLAYER SECTION

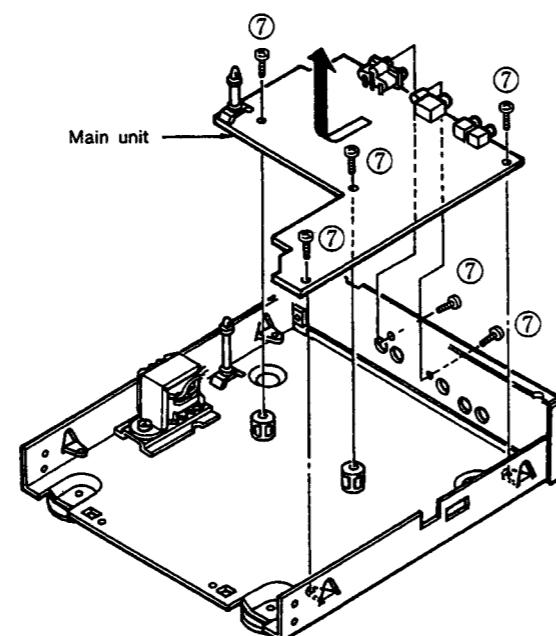
POWER UNIT 1U-2478-3

- ④ Disconnect connector CB651 which is attached to the main unit.
- ⑤ Use a pair of long-nosed pliers to disengage the board catch, which fastens the power unit, in the direction of the arrow.
- ⑥ Remove the 2 screws which fasten the power unit and remove the board in the direction of the arrow.



MAIN UNIT 1U-2478-1

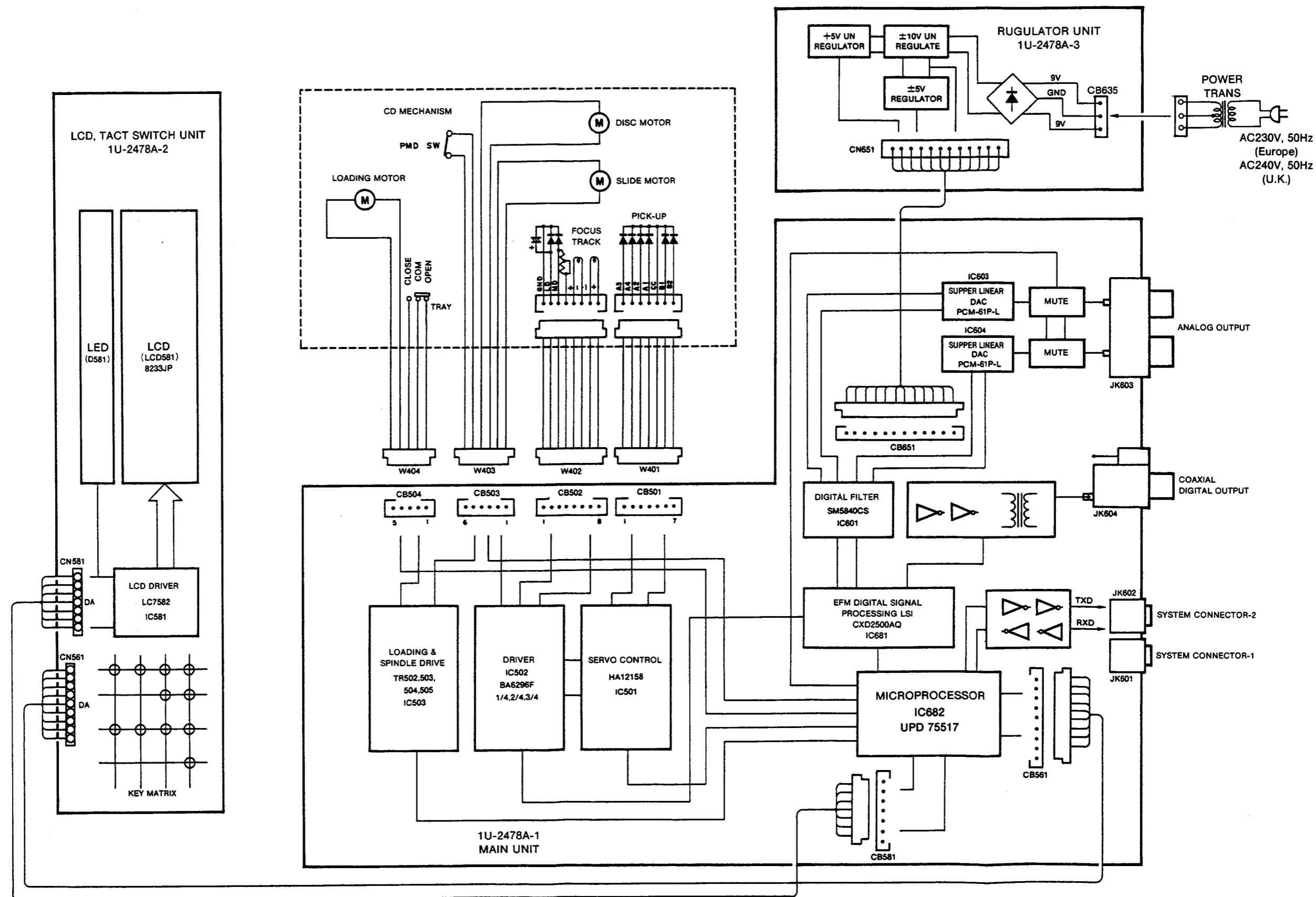
- ⑦ Remove the 6 screws which fasten the main unit and remove the board in the direction of the arrow.



BLOCK DIAGRAM

CD PLAYER SECTION

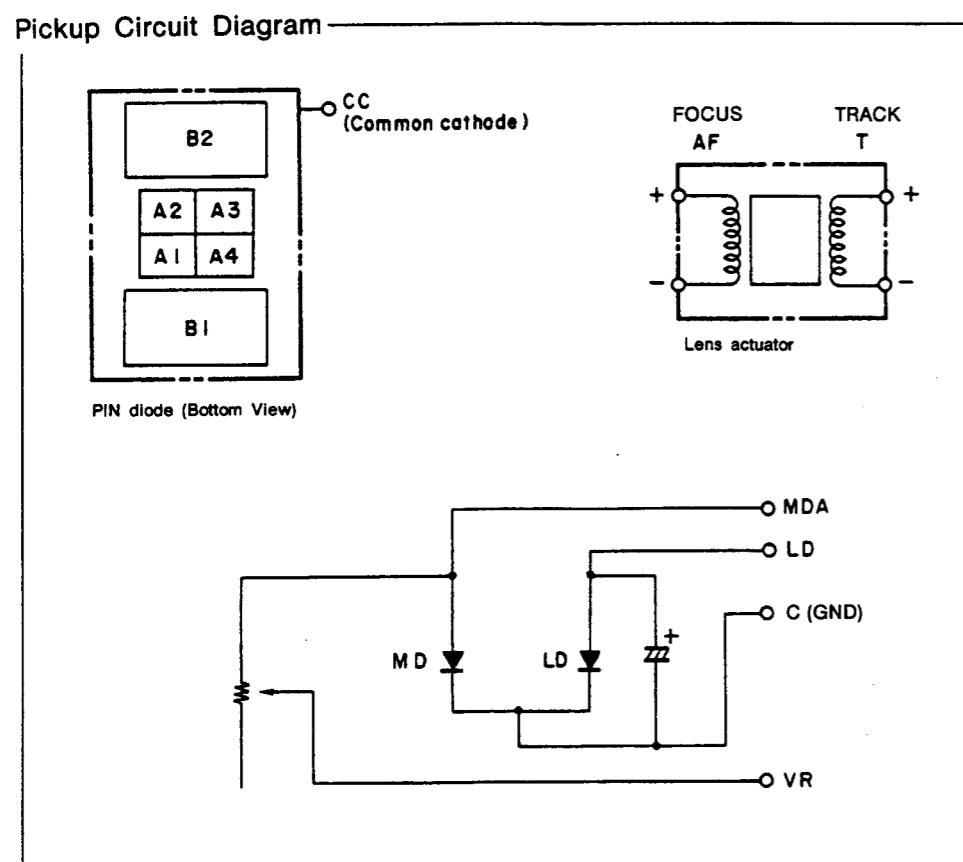
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8



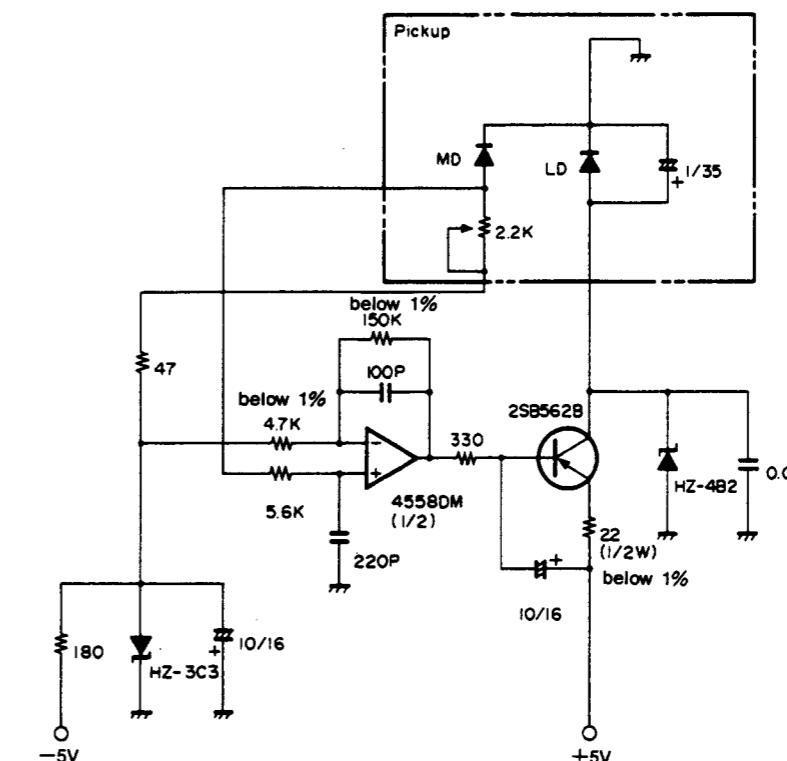
CD PLAYER SECTION

LASER PICKUP

Connections Diagram



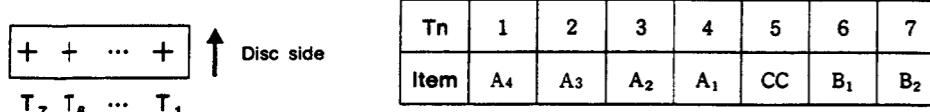
Laser Drive Basic Circuit Diagram



Measurement Circuit Diagram

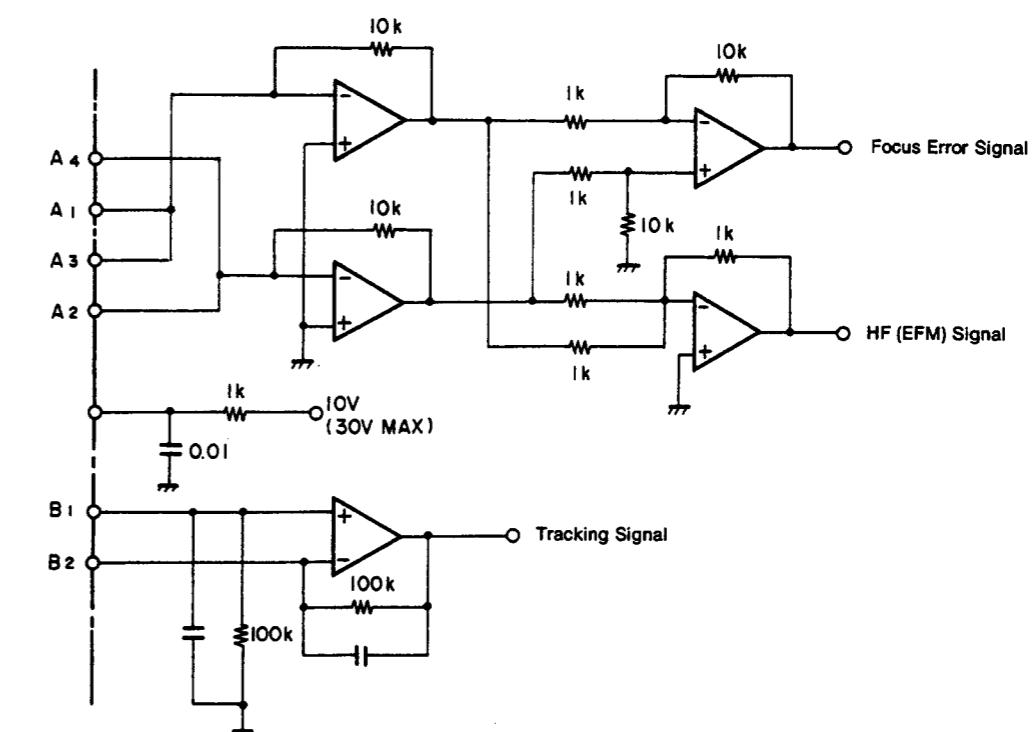
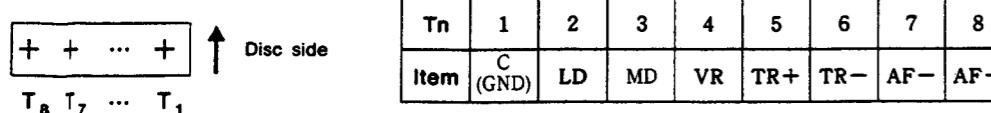
1. PD connector

PH pin post 7 pins (Type number B7B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)



2. LD actuator connector

PH pin post 8 pins (Type number B8B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)



CD PLAYER SECTION

● Precautions in Use

Read the following carefully before handling.

1. Laser control circuit

The light output of the laser diode (LD) is greatly affected by temperature, so a built-in monitor photodiode should be used in the LD to supplement the light output.

In order to get rid of the dispersion of the monitor photodiode, the semiconductor resistor accompanying the pickup has been adjusted so that the mirror surface level of the HF signal becomes 250 mV when the measurement circuit of this manual and the basic laser drive circuit are used. When designing a new laser drive circuit, note that the life of the laser will be shortened when the mirror level of the HF signal becomes 275 mV with this measuring circuit.

2. Wiring

Be sure to use the specified connectors for the wiring.

Note that the eye pattern may deteriorate when there is a microprocessor or other digital noise source in the vicinity from the photodiode to the harness.

Note that a poor connection related to the LD and actuator connector will cause deterioration of the laser, and so there should not be any looseness of connectors.

● Precautions in Handling

This mechanism has been precisely assembled and adjusted at a special factory. It should not be disassembled or adjusted without good reason. Pay attention to the following points related to handling.

1. General items

(1) Storage

Avoid storage in places with high temperatures and high humidity, and in places exposed to a lot of dust.

(2) Handling

The unit has been precisely adjusted and care should be taken so as not to expose the unit to shocks through dropping or careless handling.

2. Semiconductor laser (LD)

(1) Protection of the eyes from the laser

The output of the LD is via an objective lens and is a maximum of 400 μW , but reaches approximately $1.3 \times 10^4 \text{ W/cm}^2$ in places where there is condensed light. After being condensed by the objective lens, the beam widens and so is all right at a distance of 30 cm or further, but during operation the LD should never be allowed to be viewed directly or through another lens or mirror since this is dangerous.

(2) Destruction by surge currents or static electricity

When a large current flows through the LD, even for a very short period, the strong light which the LD generates itself will advance the deterioration of the LD or destroy it.

Wire a switch into the LD drive circuit or provide another method of preventing the flow of surge currents. Also, when handled without care, the LD can be destroyed instantly by the application of static electricity from the body. Therefore, when handling the LD, be sure to ground your body and ground the measuring instruments, jigs, and tools. It is also desirable to use a grounding mat on the work bench and floor.

3. Lens actuator

(1) The actuator section uses a strong magnetic circuit, so that when magnetic bodies come too close, their characteristics are altered.

Also be careful not to allow foreign matter to enter from the cover gap.

(2) Lens cleaning

Dust or dirt adhering to the objective lens will change the performance.

To clean, blow the dirt away with clean air from an air blower.

4. Handling

Be sure not to contact the lens when handling the LD.

Note that direct contact of the body or other objects with the circuit of the LD board will cause deterioration to occur, so sufficient care should be taken.

CD PLAYER SECTION

SERVICE POINTS

1. Parts replacement of the tray mechanism (Figs. 1 and 2)

(1) Removal of the tray

Open the tray and use a flat-bladed screwdriver to press the stopper portions of Fig. 1 (one each in the left and right locations) in the direction of the black arrow, then remove in the direction of the white arrow.

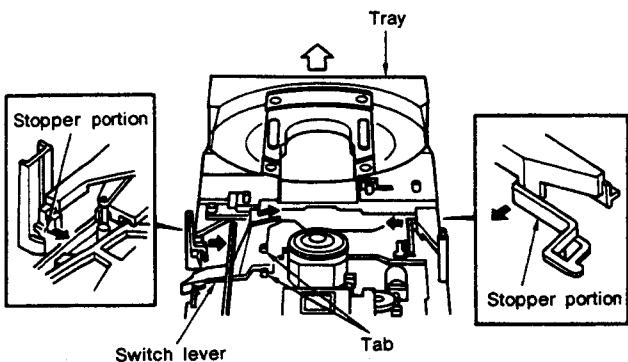


Fig. 1

(2) Mounting of the tray (Figs. 1, 2, and 3)

Rotate the switch lever in the direction of the arrow, set the latches of the tray as illustrated in Fig. 2, then align the rails of the tray in the grooves of the loading plate, and insert so that the pinch lever pins of the switch lever enter into the rack grooves. Push in the tray while pressing the stopper portion inside a little.

(Check that the latches are in the positions illustrated in Fig. 2.)

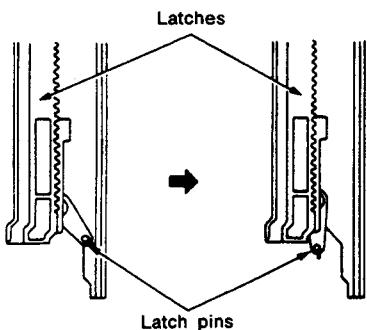


Fig. 2

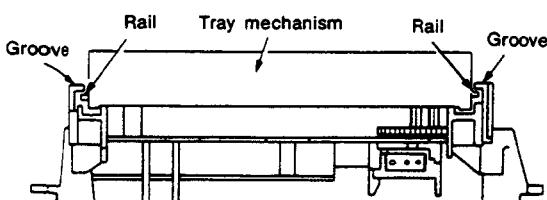


Fig. 3

(3) Replacement of the disc holder (Fig. 4)

With the tray removed, remove tabs ④ and ⑤ of the disc receptacle of Fig. 4, then lift up and off.

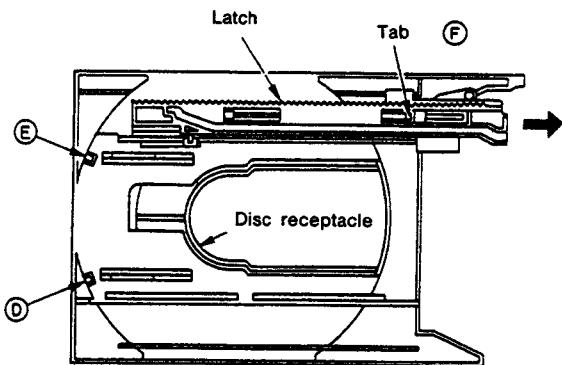


Fig. 4

(4) Replacement of the latches (Fig. 4)

Set the latches into the condition of Fig. 4, lift the latch tab (F) up about 1 mm with a flat-bladed screwdriver and remove the rack in the direction of the arrow.

(5) Removal of the loading motor and switches (Fig. 5)

Remove the belt from the loading motor, then remove the 3 tabs. Remove the fixed tabs from the various switches.

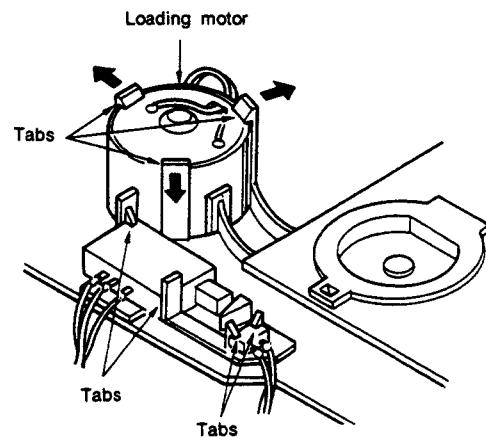


Fig. 5

(6) Replacement of the belt

Replace the belt with the tray removed.

(7) Replacement of the clamer (Fig. 6)

Hook the elongated holes of the clamer onto the C arm, bend the elongated hole sections and attach.

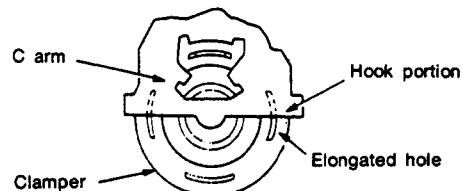


Fig. 6

(8) Replacement of the switch lever (Fig. 1)

Remove the tabs of the bottom side (in 2 locations).

2. Removal of the unit mechanism (Fig. 7)

After removing the loading mechanism, remove the tab of the bottom surface (in one location) as illustrated in Fig. 7.

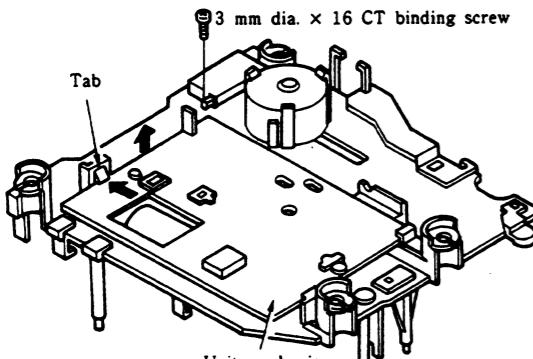


Fig. 7

(1) To replace the DC motor (D2) and the turntable, follow the procedure below

- 1) Pull the turntable (plastic) off vertically from the unit plate.
 - 2) When fitting on the servicing turntable (metal), make a height adjustment. (Fig. 8)
- Do not exert excessive force to the shaft of the DC motor (D2) at this time.

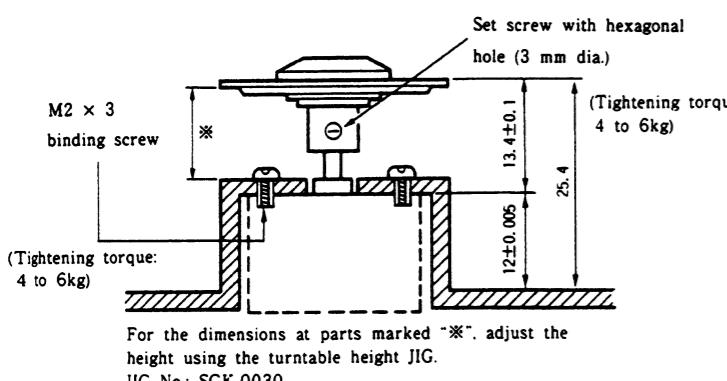


Fig. 8

- 3) At the time of service replacement of the DC motor (D2), do not apply excessive force in direction B. When part C of the unit plate is misshapen, it will cause eye pattern deterioration. (Fig. 9)

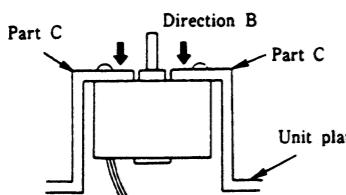


Fig. 9

NOTE:

- Motor replacement or turntable replacement method
Remove the pressure-fitted turntable, and remove the motor screws.
- Do not reuse a turntable (plastic) that has been removed once.

(2) When disassembling and assembling the unit mechanism, assemble with wiring resembling that of Fig. 10

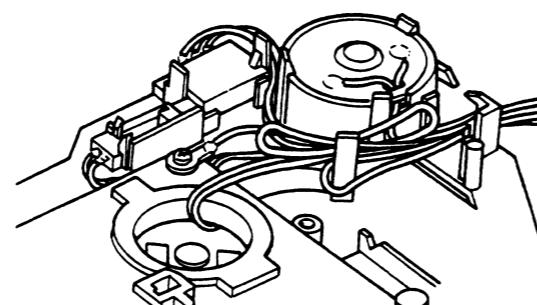


Fig. 10

3. Inspection of the objective lens (Fig. 11)

Handle so as not to get dirt or dust on the objective lens of the lens actuator section. Note that when used for a long period, dirt or dust may have adhered to the objective lens. Try cleaning the surface of the objective lens with a dry, clean cotton swab.

If the dirt still does not come off, moisten the cotton swab with a small amount of water and wipe. When doing this, be careful not to get water on any parts other than the lens.

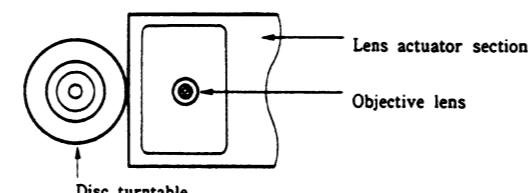


Fig. 11

4. Inspection for laser breakdown

The laser is normally driven with a current of 30 to 80 mA. If this laser drive current value is measured at 120 mA or higher in the circuit, the laser may be thought to be faulty. (The current value is measured by taking the voltage (0.99 to 3.3 V) across both ends of R401, which is 33 ohms).

5. Precautions at time of servicing (Fig. 12)

(1) Semiconductor laser

The semiconductor laser is very susceptible to static electricity destruction and surge currents. Be careful never to touch the terminals of the semiconductor laser and the terminals of the flexible board with your hands or a tool.

As illustrated in Fig. 12, the current and light intensity characteristics increase abruptly once the threshold current value is exceeded.

Also note that this threshold current differs a little from laser to laser. In view of this, when replacing the unit mechanism or any work that involves setting the amount of light of the laser, be sure to turn the adjustment control VR401 fully in the counterclockwise direction, and then raise it to the specified value.

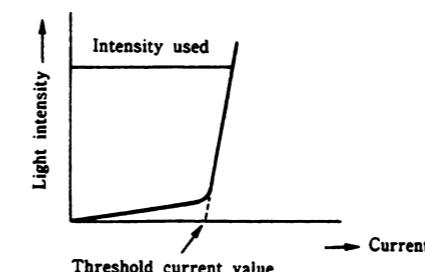


Fig. 12

(2) Handling the unit mechanism (Fig. 13)

When handling the pickup mechanism and the unit mechanism, use a ground ring such as the one illustrated in Fig. 13. (A ground ring can be constructed using ordinary lead wire.)

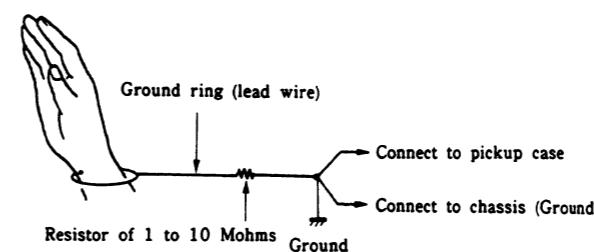


Fig. 13

6. Inspection of the actuator (Fig. 14)

Check the resistance value of the actuator coil. It is normal if the values are as follows:

Focusing coil	30 ohms
Tracking coil	10 ohms

If the coils are open or shorted, the actuator may be thought to be broken. Also, a 1.5 V battery can be used to observe if the lens moves.

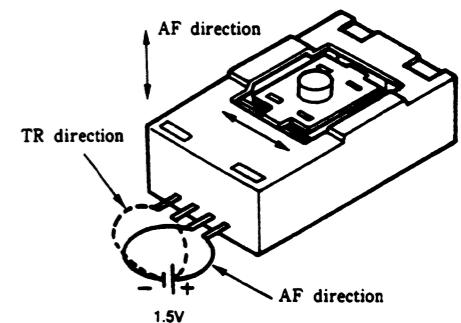


Fig. 14

CD PLAYER SECTION

ADJUSTMENT METHOD

The microprocessor contained in this unit incorporates a service program which allows a wide variety of service adjustments to be conducted easily by using the operation buttons.

1. Method of starting the service program

Switch on the AC power while simultaneously pressing the ▶ PLAY button and the ▲ OPEN/CLOSE button of the CD unit (UCD-250). When all power has been switched on there will be a transition to the service program. At this time the display section of the CD unit (UCD-250) display tube will indicate "01".

NOTE: Once the service program starts the operation buttons cannot be used for normal operation.

2. Operation functions when the service program is operating

Operation button	Operation function	Description
▲ OPEN/CLOSE	Opens and closes the disc holder.	<ul style="list-style-type: none"> Opening and closing takes place when the rotation of the disc has stopped. Other operation buttons are performed when the opening and closing operation is completed.
■ STOP	Stops system operation.	<ul style="list-style-type: none"> Track number display becomes 01. Press when an adjustment has been completed or is redone.
▶ PLAY	Operates the focus servo and rotates the disc.	<ul style="list-style-type: none"> Press at the time of the tracking offset adjustment. After the operation is completed, the track number display becomes 02.
■ PAUSE	Operates the focus servo, tracking servo, slide servo, and the spindle servo.	<ul style="list-style-type: none"> When the play button has been pressed, the tracking servo and slide servo are operated. After the operation is completed the track number display becomes 03.
Other buttons	Operation is not normal.	<ul style="list-style-type: none"> Do not operate buttons other than the above. When a button is operated by mistake, immediately turn the power switch off.

NOTE: Do not use the remote control while the service program is operating.

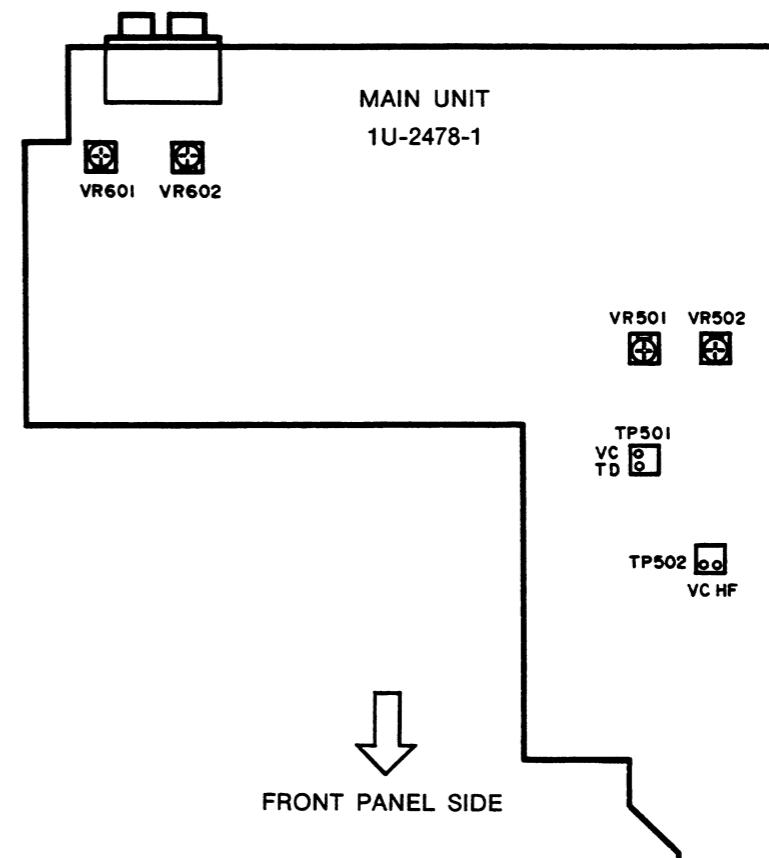
3. Adjustment method

(1) Measuring instruments required in the adjustment

- ① Dual-trace oscilloscope
- ② Oscilloscope

OUTLINE DIAGRAM OF ADJUSTMENT LOCATION

1U-2478-1 MAIN UNIT ASS'Y (Component Side)

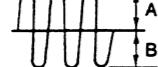


NOTE: VR601 and VR602 have been adjusted before shipping and do not require adjustment.

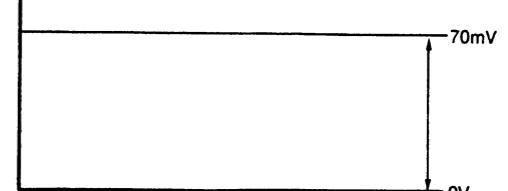
(2) Adjustment preparation

1.	Set the adjustment control (VR501, 502) to the position illustrated.	VR501 (T-OFFSET) VR502 (F-OFFSET)
2.	Adjustment step	1. Tracking offset 2. Focus offset

(3) Tracking offset adjustment

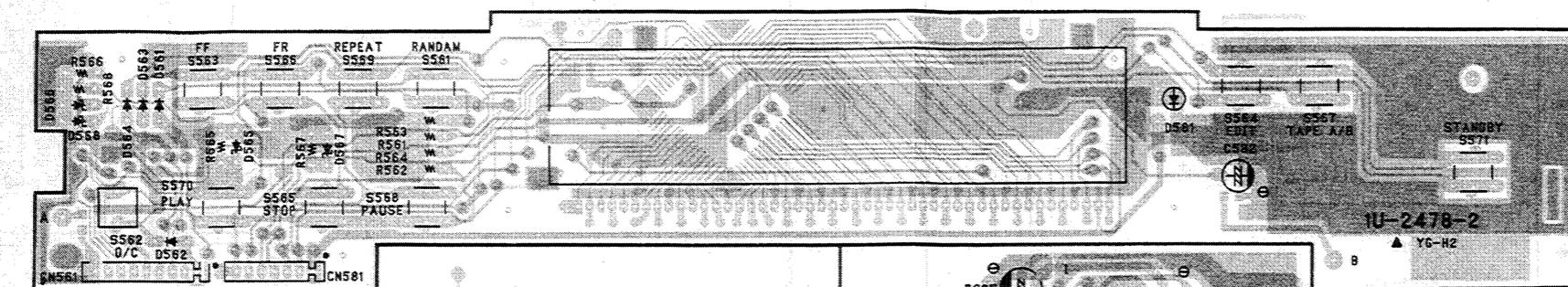
Wiring Diagram				
Oscilloscope (DC range)	Adjustment location	Check items	Adjustment procedure	
V	H	(Control)	DC Voltmeter	
0.2V/ div	1~2ms div	VR501	 A = B	<ol style="list-style-type: none"> ▲ OPEN/CLOSE Press the OPEN/CLOSE button and place an adjustment disc in the disc holder. ▲ OPEN/CLOSE Press the OPEN/CLOSE button again and close the disc holder. ▶ PLAY Press the PLAY button and check that the display indicates "02". Short circuit the (+) and (-) terminals of the oscilloscope and check the board wiring. Adjust the VR501 "T-OFFSET" control and set the upper and lower amplitude of the waveform to be equal.

(4) Focus offset Adjustment

Wiring diagram						
Oscilloscope	Adjustment location	Check items				
V	H	Control	Oscilloscope			
50mV/div or 20mV/div	0.2 μ/div or 0.5 μ/div	VR502				
Adjustment Procedure						
<ol style="list-style-type: none"> Press the ■ STOP button. Adjust VR502 "F. OFFSET" and set the FEO voltage to +70 mV (±10 mV). 						

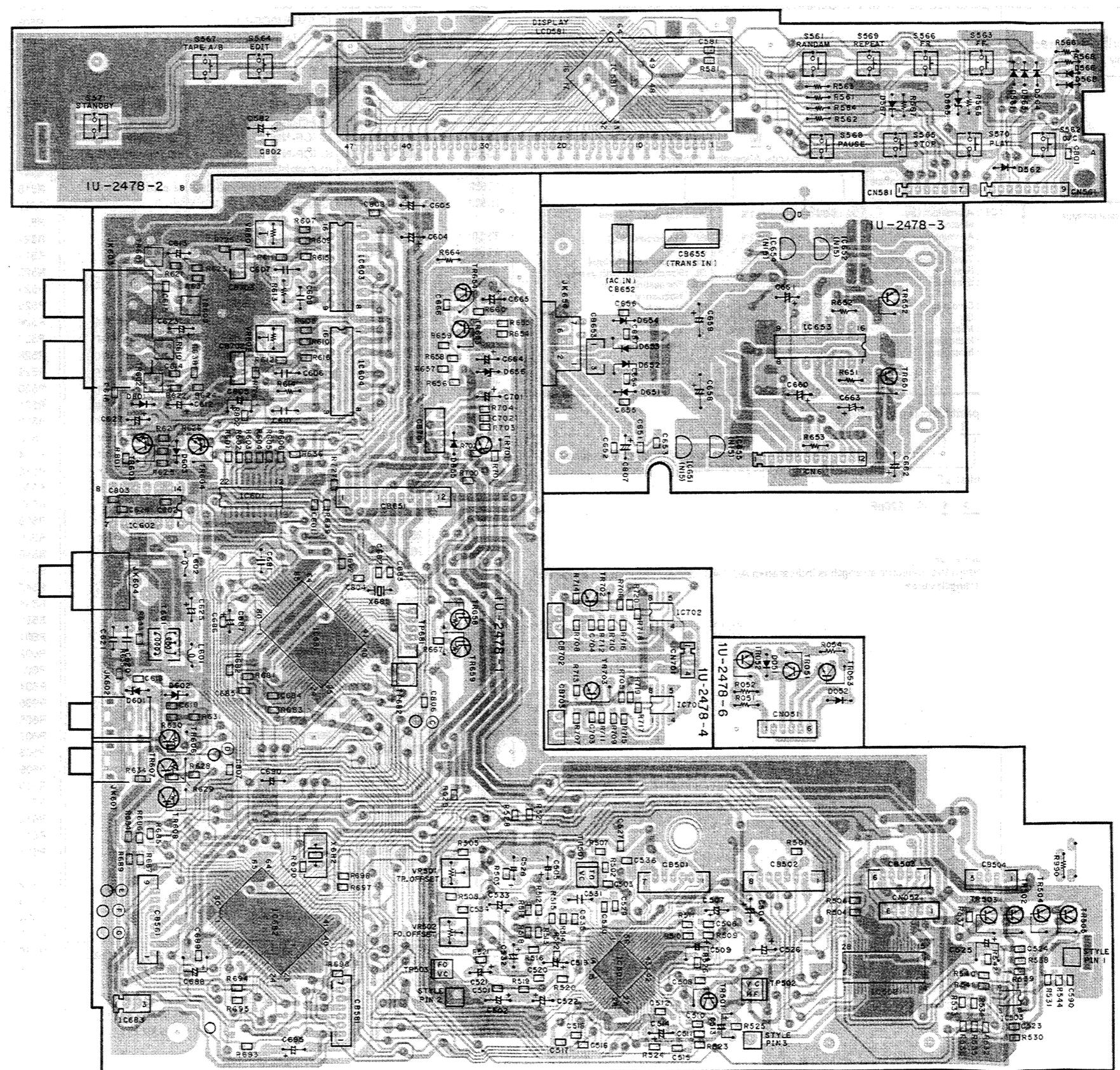
1U-2478 UCD-250 UNIT ASS'Y Component Side

A



1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

Pattern Side



CD PLAYER SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "◎" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN 14K 2E 182 G FR
 Type Shape Power Resist- Allowable Others
 and per- ance error

RD : Carbon Film	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic oxide Film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

*Resistance
 1 8 2 ⇒ 1800 ohm = 1.8 kohm

Indicates number of zeros after effective number
 2-digit effective number

• Units: ohm

1 R 2 ⇒ 1.2 ohm

1-digit effective number.
 2-digit effective number, decimal point indicated by R.

• Units: ohm

*Capacity(electrolyte only)

2 2 R ⇒ 2200 μF

Indicates number of zeros after effective number.
 2-digit effective number.

• Units: μF

2 R 2 ⇒ 2.2 μF

1-digit effective number.
 2-digit effective number, decimal point indicated by R.

• Units: μF

• Capacitors

Ex.: CE 04W 1H 2R2 M BP
 Type Shape Dielectric Capacity Allowable Others
 and per- strength error

CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80%	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : +100%	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	= : Others	
	2J : 630V		

*Capacity (except electrolyte)

2 R 2 ⇒ 2200pF = 2.2nF = 0.002 μF

(More than 2) — Indicates number of zeros after effective number.
 2-digit effective number.

• Units: pF

2 2 1 ⇒ 220pF

(0 or 1) — Indicates number of zeros after effective number.
 2-digit effective number.

• Units: pF

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

1U-2478A P.W.B UNIT ASSY PARTS LIST

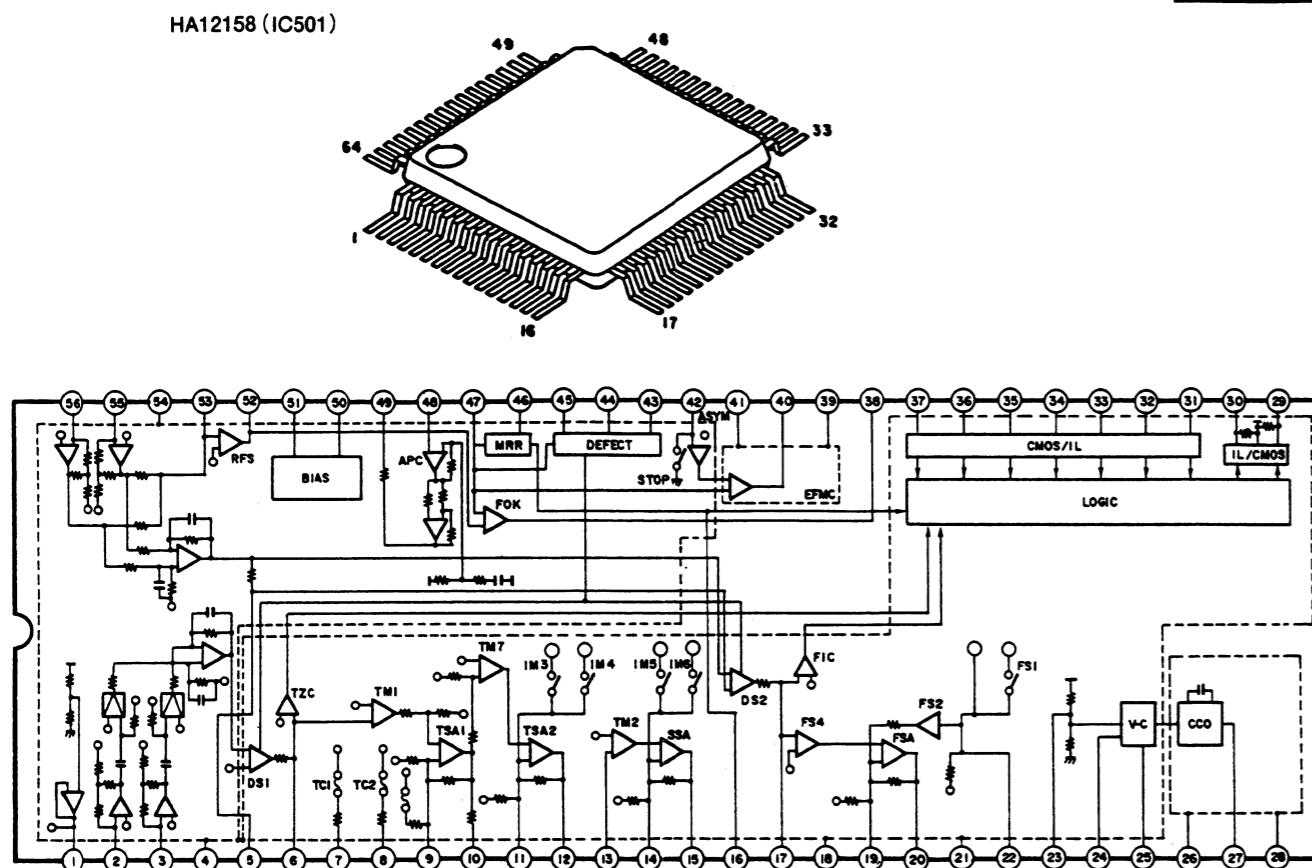
Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP							
IC501	263 0821 000	IC HA12158		R503	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
IC502	263 0805 903	IC BA6296FP		R504	247 0010 961	Chip Carbon 22k ohm 1/10W	RM73B--223J
IC503	263 0615 902	IC BA15218F		R505	247 0008 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
IC581	263 0533 000	IC LC7582		R506	247 0011 902	Chip Carbon 33k ohm 1/10W	RM73B--333J
IC601	262 1397 909	IC SM5840CS-L1		R507	247 0010 987	Chip Carbon 27k ohm 1/10W	RM73B--273J
IC602	262 1126 002	IC PC74HC00P		R508	247 0008 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
IC603	262 1409 004	IC PCM61P-L		R509	247 0005 976	Chip Carbon 200 ohm 1/10W	RM73B--201J
IC604	262 1409 004	IC PCM61P-L		R510	247 0008 902	Chip Carbon 1.8kohm 1/10W	RM73B--182J
IC651	268 0073 905	IC ICP-N15	IC Protector 15 V	R511	247 0009 969	Chip Carbon 8.2kohm 1/10W	RM73B--822J
IC652	268 0073 905	IC ICP-N15	IC Protector 15 V	R512	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
IC653	263 0693 005	IC M5290P		R513	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
IC654	268 0073 905	IC ICP-N15	IC Protector 15 V	R514	247 0009 972	Chip Carbon 9.1kohm 1/10W	RM73B--912J
IC655	268 0073 905	IC ICP-N15	IC Protector 15 V	R515	247 0012 901	Chip Carbon 82k ohm 1/10W	RM73B--823J
IC681	262 1514 009	IC CXD2500AQ		R516	247 0010 903	Chip Carbon 12k ohm 1/10W	RM73B--123J
IC682	262 1625 406	IC μPD75517GF-150-3B9	μ com	R517	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
IC683	262 0678 001	IC MN1280-S		R518	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
TR501	271 0102 937	Transister 2SA1015(GR/Y)		R519	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR502	274 0144 907	Transister BC368		R520	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
TR503	272 0101 902	Transister BC369		R521	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
TR504	274 0144 907	Transister BC368		R522	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
TR505	272 0101 902	Transister BC369		R523	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR601	269 0066 902	Transister DTC323TK	Built in Resistor	R524	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR602	269 0066 902	Transister DTC323TK	Built in Resistor	R525	247 0003 949	Chip Carbon 22 ohm 1/10W	RM73B--220J
TR603	269 0020 906	Transister DTC114ES	Built in Resistor	R526	247 0010 903	Chip Carbon 12k ohm 1/10W	RM73B--123J
TR604	269 0046 906	Transister DTA114ES	Built in Resistor	R527	247 1009 984	Chip Carbon 10 k ohm 1/8W	RM73B2B103J
TR606	269 0040 902	Transister DTC144ES	Built in Resistor	R528	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR607	269 0040 902	Transister DTC144ES	Built in Resistor	R529	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR608	269 0040 902	Transister DTC144ES	Built in Resistor	R530	247 0012 914	Chip Carbon 91k ohm 1/10W	RM73B--913J
TR609	269 0066 902	Transister DTC323TK	Built in Resistor	R531	247 0005 989	Chip Carbon 220 ohm 1/10W	RM73B--221J
TR610	269 0066 902	Transister DTC323TK	Built in Resistor	R532	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
TR611	269 0066 902	Transister DTC323TK	Built in Resistor	R533	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
TR612	274 0415 003	Transister BD935F		R534	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR651	272 0102 008	Transister BD936F		R535	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR652	274 0144 907	Transister BC368		R536	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
TR653	273 0222 907	Transister 2SC2458(Y/GR)		R537	247 0010 961	Chip Carbon 22k ohm 1/10W	RM73B--223J
TR654	273 0222 907	Transister 2SC2458(Y/GR)		R538	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
TR655	269 0020 906	Transister DTC114ES	Built in Resistor	R539	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
TR656	269 0020 906	Transister DTC114ES	Built in Resistor	R540	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
D561	276 0432 903	Diode 1SS270A		R541	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
D562	276 0432 903	Diode 1SS270A		R542	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
D563	276 0432 903	Diode 1SS270A		R544	247 0003 949	Chip Carbon 22 ohm 1/10W	RM73B--220J
D564	276 0432 903						

CD PLAYER SECTION

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
R633	247 0004 977	Chip Carbon 75 ohm 1/10W	RM73B--750J	C525	254 4260 964	Electrolytic 3.3μF/50 V	CE04D1H3R3M	C807	257 0010 942	Chip Ceramic 0.022μF/50 V	CK73B1H223K
R634	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J	C525	254 4252 930	Electrolytic 100μF/10 V	CE04W1A101M	C808	257 0010 942	Chip Ceramic 0.022μF/50 V	CK73B1H223K
R635	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J	C526	254 4250 929	Electrolytic 100μF/6.3 V	CE04W0J101M	OTHERS GROUP			Q'ty
R636	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J	C527	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K	L601	235 0049 900	(P.W.Board)	
R637	247 0005 963	Chip Carbon 180 ohm 1/10W	RM73B--181J	C528	254 4254 938	Electrolytic 47μF/16 V	CE04W1C470M	L602	235 0049 900	Beads Inductor Tape	1
R638	247 0005 963	Chip Carbon 180 ohm 1/10W	RM73B--181J	C529	257 1011 995	Chip Ceramic 0.056μF/50 V	CK73B1H563K	212 5604 910	Tact Switch	1	
R639	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K	C530	257 0010 955	Chip Ceramic 0.027μF/50 V	CK73B1H273K	449 0057 009	LCD Holder	1	
R654	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J	C531	256 1034 995	Metallized 0.15μF/50 V	CF93A1H154J	417 0307 008	Heat Sink	1	
R655	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K	C532	254 4254 912	Electrolytic 22μF/16 V	CE04W1C220M	470 0012 022	Pan Screw 3×12 with Sw.W	2	
R656	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J	C533	254 4260 919	Electrolytic 0.22μF/50 V	CE04W1HR22M	X681	399 0112 005	Crystal (16.934MHz)	1
R657	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C534	257 0008 983	Chip Ceramic 0.22μF/50 V	CE04W1HR22M	X682	399 9018 003	Ceramic Vibrator	1
R658	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C535	257 0006 901	Chip Ceramic 0.01μF/50 V	CK73B1H103K	T601	231 8063 009	Pulse Trans	CST 4.00MGW
R659	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J	C536	257 0010 900	Chip Ceramic 0.01μF/50 V	CC73SL1H681J	JK601	204 8421 005	Mini Jack	1
R660	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J	C581	257 0006 969	Chip Ceramic 680 pF/50 V	CE04W1C101M(SRA)	JK602	204 8421 005	Mini Jack	1
R664	247 0054 987	Metallized 0.15μF/50 V	TS14B34MR7NBSS	C582	254 4193 947	Electrolytic 100μF/16 V	CE04W1C101M(SRA)	JK603	204 8413 000	2 P Pin Jack(C-GND)	1
R667	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C590	257 0014 935	Chip Ceramic 0.1μF/25 V	CK73F1E104K	JK604	204 8366 005	1 P Pin Jack	1
R681	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J	C601	257 1009 923	Chip Ceramic 330 pF/50 V	CK73B1H331K	JK654	204 2429 003	7 P System Socket	1
R682	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C602	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K	CN581	204 2513 029	7 P KR-DA Conn. Cord	1
R683	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J	C604	254 4254 930	Electrolytic 100μF/10 V	CE04W1A101M	CN561	204 2561 000	9 P KR-DA Conn. Cord	1
R684	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J	C605	254 4254 930	Electrolytic 100μF/10 V	CE04W1A101M	CN651	204 6286 035	12 P PH-SAN Conn. Cord	1
R685	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J	C606	255 4235 963	Plastic Film 0.0056μF/100V	CQ93P2A562J(NH)	CB501	205 0343 074	7 P Conn. Base(KR-PH)	1
R686	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C607	255 4235 963	Plastic Film 0.0056μF/100V	CQ93P2A562J(NH)	CB502	205 0343 087	8 P Conn. Base(KR-PH)	1
R687	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C609	253 4456 908	Ceramic 680 pF/50 V	CC45SL1H681J	CB503	205 0343 061	6 P Conn. Base(KR-PH)	1
R689	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C610	253 4456 908	Ceramic 680 pF/50 V	CC45SL1H681J	CB504	205 0343 058	5 P Conn. Base(KR-PH)	1
R690	247 0014 967	Chip Carbon 1 M ohm 1/10W	RM73B--105J	C612	254 4313 918	Electrolytic 10μF/50 V	CE04W1H100M(ASF)	CB561	205 0343 090	9 P Conn. Base(KR-PH)	1
R692	247 0008 915	Chip Carbon 2 k ohm 1/10W	RM73B--202J	C613	254 4313 918	Electrolytic 10μF/50 V	CE04W1H100M(ASF)	CB581	205 0343 074	7 P Conn. Base(KR-PH)	1
R693	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C614	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J	CB651	205 0375 026	12 P Conn. Base(KR-PH)	1
R694	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C615	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J	TP501	205 0133 022	2 P NH Conn. Base	1
R695	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C616	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K	TP502	205 0133 022	2 P NH Conn. Base	1
R696	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C618	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J	TP503	205 0133 022	2 P NH Conn. Base	1
R698	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J	C619	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J	205 0452 004	Style Pin	2	
R725	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K	C620	253 1146 907	Ceramic 0.01μF/50 V	CK45F1H103Z	203 0374 021	1 P SIN Conn. Assy	1	
R726	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K	C621	253 4452 902	Ceramic 470 pF/50 V	CC45SL1H471J	203 0340 068	1 P Contact Assy	1	
R727	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K	C623	254 4260 948	Electrolytic 1μF/50 V	CE04W1H010M	CB653	205 0233 032	3 P EH Conn. Base	1
R801	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K	C625	254 4254 925	Electrolytic 33μF/16 V	CE04W1C330M	CB655	205 0581 001	2 P VH Conn. Base	1
R802	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J	C626	254 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J	CB655	205 0624 007	:2 P AC Conn. Base	1
VR501	211 6087 931	Semi Fixed Resistor 4.7k ohm	V06PB472	C651	257 1011 908	Chip Ceramic 0.01μF/50 V	CK73B1H103K				
VR502	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104	C652	257 1011 908	Chip Ceramic 0.01μF/50 V	CK73B1H103K				
VR601	211 6087 928	Semi Fixed Resistor 500k ohm	V06PB104	C653	257 1011 908	Chip Ceramic 0.01μF/50 V	CK73B1H103K				
VR602	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104	C654	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K				
CAPACITORS GROUP				C655	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K				
C501	257 0010 900	Chip Ceramic 0.01μF/50 V	CK73B1H103K	C658	254 4255 704	Electrolytic 3300μF/16 V	CE04W1C332MC				
C502	254 4250 929	Electrolytic 100μF/6.3 V	CE04W0J101M	C659	254 4255 704	Electrolytic 3300μF/16 V	CE04W1C332MC				
C503	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K	C660	254 4260 948	Electrolytic 1μF/50 V	CE04W1H010M				
C504	254 4260 935	Electrolytic 0.47μF/50 V	CE04W1HR47M	C661	254 4260 964	Electrolytic 3.3μF/50 V	CE04W1H3R3M				
C505	254 4254 909	Electrolytic 10μF/16 V	CE04W1C100M	C662	254 4254 954	Electrolytic 220μF/16 V	CE04W1C221M				
C506	257 0004 987	Chip Ceramic 120 pF/50 V	CC73SL1H121J	C663	254 4254 954	Electrolytic 220μF/16 V	CE04W1C221M		</		

CD PLAYER SECTION

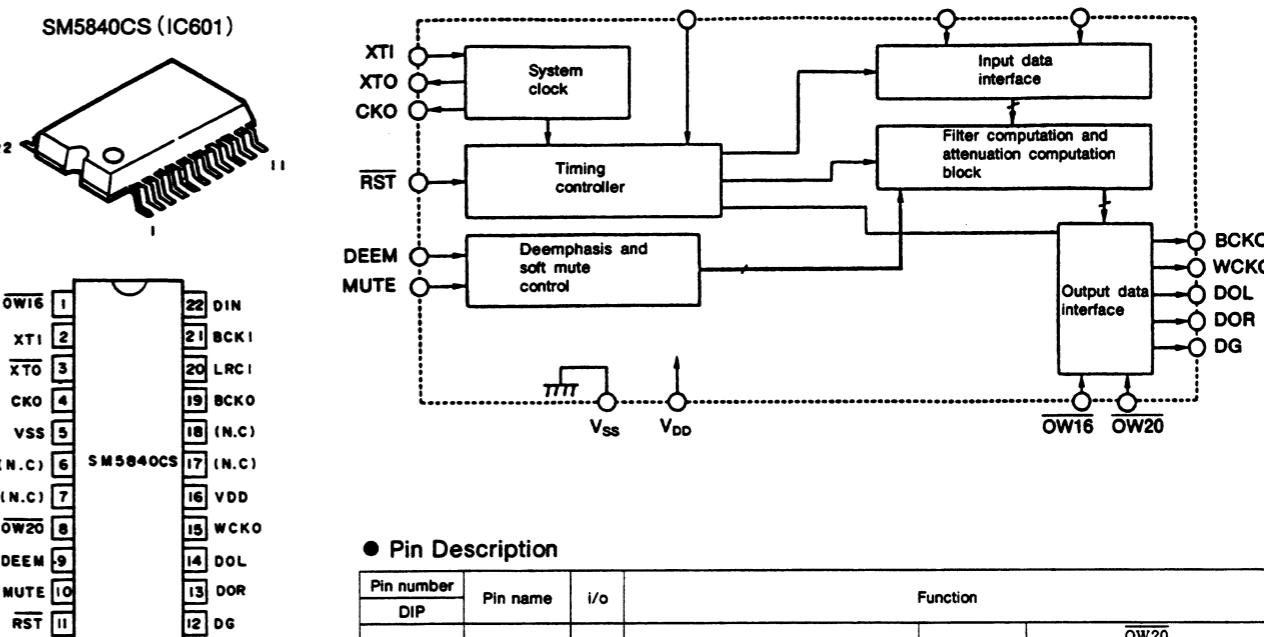
● IC's



● Pin function table

Pin No.	Symbol	I/O	Function
1	TG2	I	TG2 switch
2	TS1	I	TS1 input
3	TS10	O	TS1 output
4	TS2	I	TS2 input
5	TS20	O	TS20 output
6	TM2	I	TM2 input
7	SS	I	SS input
8	SSO	O	SSO output
9	MIRR	O	Mirror comparator output
10	FE	I/O	Focus error signal output, FS4 input
11	SG	GND	Servo block ground
12	FS	I	SSA input
13	FSO	O	FSA input
14	SVCC	Vcc	Servo block Vcc
15	FUD	O	Focus up/down voltage output
16	VCR	I/O	VCO reference voltage
17	PDIN	I	VCO control voltage input
18	FRA	O	VCO free-run frequency setting
19	VVcc	Vcc	VCO Vcc
20	VCO	O	VCO output
21	VGND	GND	VCO ground
22	COUT	O	Track count signal output
23	SENS	O	FZC and TZC signal output
24	XRST	I	Reset signal output
25	DIRC	I	Direct control signal output
26	XLT	I	Data transfer signal input
27	DATA	I	Data signal input
28	CLK	I	Data sync clock input

SEMICONDUCTORS

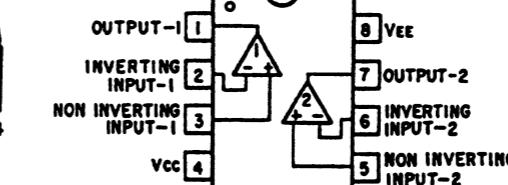
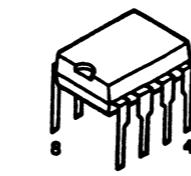


● Pin Description

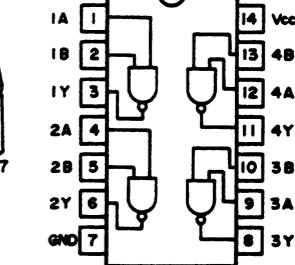
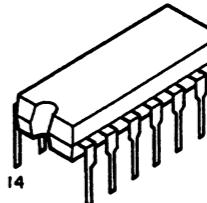
Pin number	Pin name	i/o	Function		
			Setting		OW20
1	OW16	ip	Selection pin 1 for number of output bits (NOTE) NS-ON : Noise shaper on NS-OFF : Noise shaper off	OW16	H 18bit output (NS-ON) L 16bit output (NS-ON)
2	XTI	i	Oscillator input pin	OW16	H 20bit output (NS-ON) L 16bit output (NS-ON)
3	XTO	o	Oscillator output pin		
4	CKO	o	Oscillator output clock (Frequency is the same as XTI)		
5	Vss	-	Ground pin		
6	(N.C.)				
7	(N.C.)				
8	OW20	ip	Selection pin 2 for number of output bits (NOTE) See the column of OW16. (When OW20 is low level : 18 bits or 20 bits) (When OW20 is high level : 18 bits or 16 bits)		
9	DEEM	ip	Deemphasis signal input (When DEM is low level : Deemphasis is off) (When DEM is high level : Deemphasis is on)		
10	MUTE	ip	Mute signal input (When MUTE is low level : Soft mute is off) (When MUTE is high level : Soft mute is on)		
11	RST	ip	System reset (Initialization)		
12	DG	o	Deglitch output		
13	DOR	o	Right channel data output		
14	DOL	o	Left channel data output		
15	WCKO	o	Output word clock		
16	Vdd	-	Supply pin (5 V : Standard)		
17	(N.C.)				
18	BCKO	o	Output bit clock		
19	LRCI	ip	Clock of the input data sample rate (fs)		
20	BCKI	ip	Input bit clock		
21	DIN	ip	Input data		

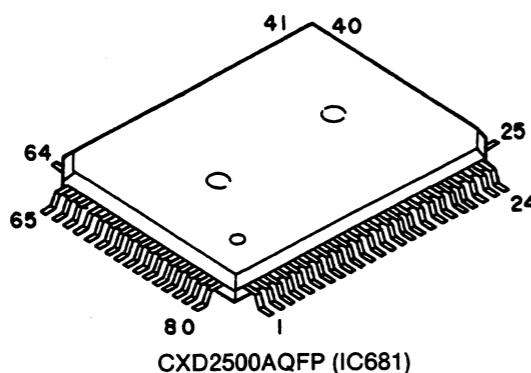
i : Input pin ip : Input pin with pull-up resistor o : Output pin

BA15218 (IC503)



HD74HC00P (IC602)





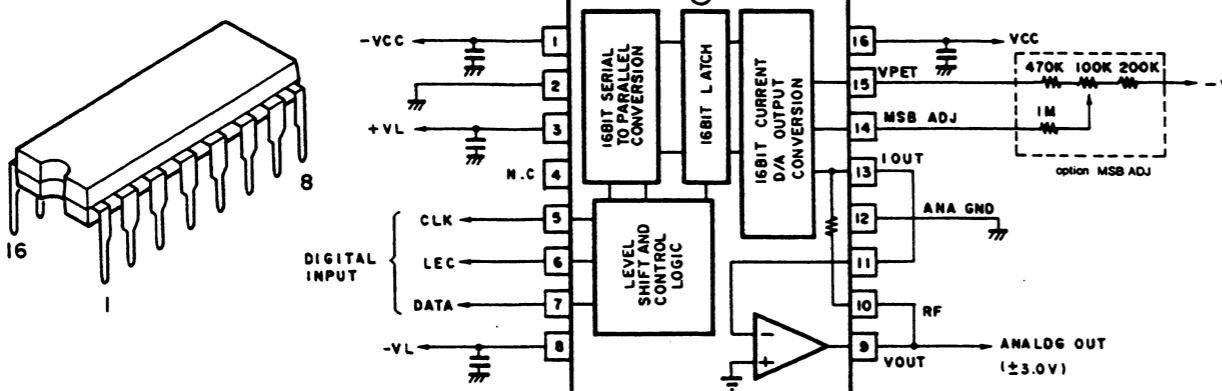
● CXD2500AQFP Pin Function Table

Pin no.	Pin symbol	I/O	Pin description	
1	FOK	I	Focus OK input pin. Used in SENS output and the servo auto sequencer.	
2	FSW	O	Z,0	Output filter switching output of the spindle motor.
3	MON	O	1,0	On-off control output of the spindle motor.
4	MDP	O	1,Z,0	Servo control of the spindle motor.
5	MDS	O	1,Z,0	Servo control of the spindle motor.
6	LOCK	O	1,0	Samples GFS at 460 Hz. When GFS is "H", H is output. L is output when there is "L", 8 times in succession.
7	NC	—		
8	VCOO	O	1,0	Oscillation circuit output for analog EFM PLL.
9	VCOI	I		Oscillation circuit output for analog EFM PLL. flock=8.6436 MHz.
10	TEST	I		Test pin, always grounded.
11	PDO	O	1,Z,0	For charge pump used with analog EFM PLL.
12	Vss			Ground
13	NC	—		
14	NC	—		
15	NC	—		
16	VPCO	O	1,Z,0	PLL charge pump output used for vari-pitch.
17	VCKI	O		Clock input fCENTER from the external VCO for varipitch equals 16.9344 MHz.
18	FILO	O	Analog	Filter output (slave = digital PLL) for master PLL.
19	FILI	I		Filter input for master PLL.
20	PCO	O	1,Z,0	Charge pump output for master PLL.
21	AVss			Analog ground.
22	CLTV	I		VCO control voltage input for master.
23	AV _{DD}			Analog supply (+5 V)
24	RF	I		EFM signal input
25	TEST2	I		Grounded
26	TEST3	I		Grounded
27	ASYO	O	1,0	EFM full-swing output. (L = Vss, H = V _{DD})
28	TEST4	I		Grounded
29	NC	—		
30	PSSL	I		Switching input for the audio data output mode. Serial output with "L" and parallel output with "H".
31	WDCK	O	1,0	D/A interface for 48-bit slot. Word clock f = 2Fs.
32	LRCK	O	1,0	D/A interface for 48-bit slot. LR clock f = Fs.
33	V _{DD}			Supply (+5 V)

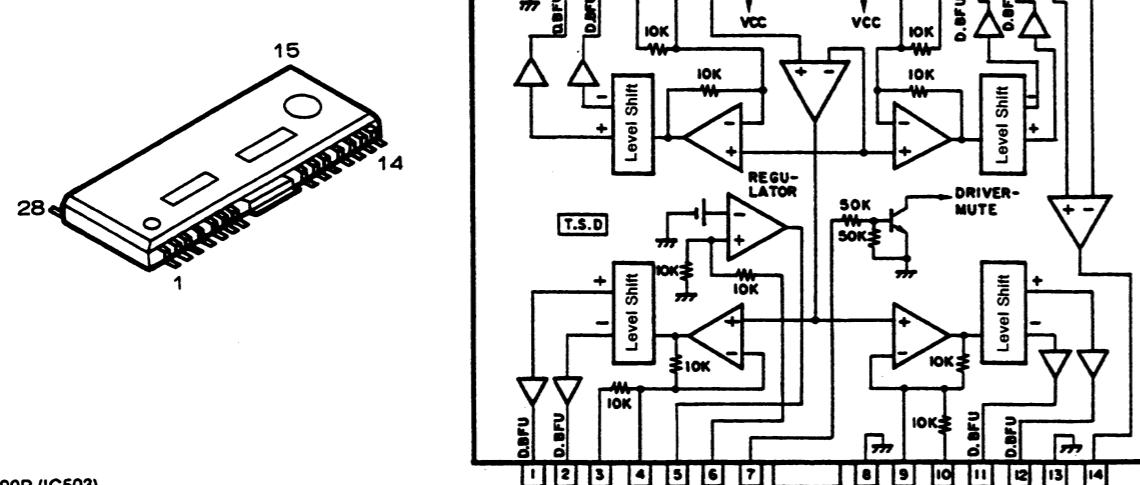
Pin no.	Pin symbol	I/O	Pin description	
34	DA16	O	1,0	DA16 (MSB) output when PSSL = 1. Serial data of the 48-bit slot when PSSL = 0. (2's COMP, MSB first.)
35	DA15	O	1,0	DA15 output when PSSL = 1. Bit clock of the 48-bit slot when PSSL = 0.
36	DA14	O	1,0	DA14 output when PSSL = 1. Serial data of the 64-bit slot when PSSL = 0. (2's COMP, LSB first.)
37	DA13	O	1,0	DA13 output when PSSL = 1. Bit clock of the 64-bit slot when PSSL = 0.
38	DA12	O	1,0	DA12 output when PSSL = 1. LR clock of the 64-bit slot when PSSL = 0.
39	DA11	O	1,0	DA11 output when PSSL = 1. CTOP output when PSSL = 0.
40	DA10	O	1,0	DA10 output when PSSL = 1. XUGF output when PSSL = 0.
41	DA09	O	1,0	DA09 output when PSSL = 1. XPLCK output when PSSL = 0.
42	DA08	O	1,0	DA08 output when PSSL = 1. GFS output when PSSL = 0.
43	DA07	O	1,0	DA07 output when PSSL = 1. RFCK output when PSSL = 0.
44	DA06	O	1,0	DA06 output when PSSL = 1. C2PO output when PSSL = 0.
45	DA05	O	1,0	DA05 output when PSSL = 1. XRAOF output when PSSL = 0.
46	DA04	O	1,0	DA04 output when PSSL = 1. MNT3 output when PSSL = 0.
47	DA03	O	1,0	DA03 output when PSSL = 1. MNT2 output when PSSL = 0.
48	DA02	O	1,0	DA02 output when PSSL = 1. MNT1 output when PSSL = 0.
49	DA01	O	1,0	DA01 output when PSSL = 1. MNT0 output when PSSL = 0.
50	APTR	O	1,0	Control output for aperture correction. "H" with Rch.
51	APTL	O	1,0	Control output for aperture correction. "H" with Lch.
52	Vss			Ground
53	XTAI	I		16.9344 MHz x'tal oscillator circuit input. Or 33.8688 MHz input.
54	XTAO	O	1,0	16.9344 MHz x'tal oscillator circuit input.
55	XTSL	I		X'tal selection input pin. "L" when the x'tal is 16.9344 MHz and "H" when the x'tal is 33.8688 MHz.
56	FSTT	O	1,0	2/3 frequency division output of pins 53 and 54. Does not change with vari-pitch.
57	C4M	O	1,0	4.2336 MHz output. Changes simultaneously when varypitch is applied.
58	C16M	O	1,0	16.9344 MHz output. Changes simultaneously when varypitch is applied.
59	MD2	I		Digital-Out on/off control. H when on and L when off.
60	DOUT	O	1,0	Digital-out output pin.
61	EMPH	O	1,0	When the playback disc has emphasis, "H" is output. "L" is output when there is no emphasis.
62	WFCK	O	1,0	WFCK (Write Frame Clock) output.
63	SCOR	O	1,0	"H" output when either sub code sync S0 or S1 is detected.
64	SBSO	O	1,0	Sub P through W serial output.
65	EXCK	I		Clock input for SBSO read-out use.
66	SQSO	O	1,0	SubQ 80 bit and PCM peak level data 16-bit output.
67	SQCK	I		Clock input for SQSO read-out use.
68	MUTE	I		Mute L is cancelled with H.
69	SENS	—	1,Z,0	SENS output. Output to CPU.
70	XRST	I		System set. Reset with "L".
71	DATA	I		Serial data input from CPU.
72	XLAT	I		Latch input from CPU. Latches serial data on the fall.
73	V _{DD}			Supply (+5 V)
74	CLOK	I		Serial data transfer clock input from CPU.
75	SEIN	I		Sense input from SSP.
76	CNIN	O		Count signal input of number of track jumps.
77	DATO	O	1,0	Serial data output to SSP.
78	XLTO	O	1,0	Serial data latch output to SSP. Latches on the fall.
79	CLKO	O	1,0	Serial data transfer clock output to SSP.
80	MIRR	I		Mirror signal input. Used in jumps of 128 tracks or more with an auto sequencer.

CD PLAYER SECTION

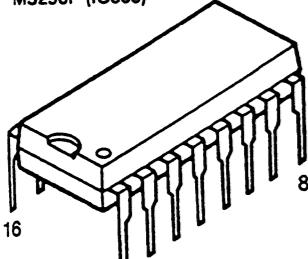
PCM61P-L (IC203, 204)



BA6296FP (IC502)



M5290P (IC503)

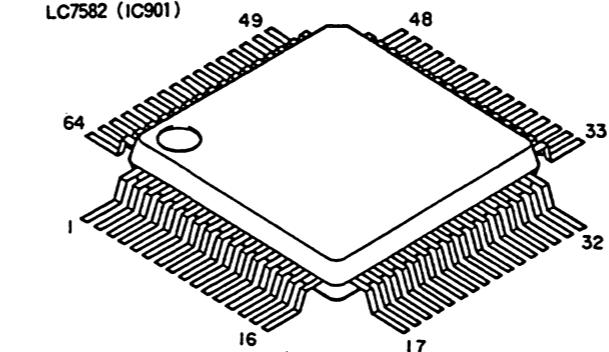


Collector Output (-)	2
Emitter Output (+)	3
NC	4
Output (-5V)	5
Balance Adj.	6
Delay Capacity	7
Reset Output	8
M5290P	
Vcc	15
-Vcc	16
ON/OFF Control	10
Standard Input	11
Output (+5V)	12
Collector Output (+)	13
NC	14

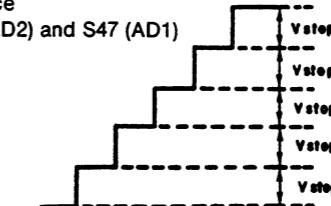
● IC PROTECTOR ICP-N15 (IC501, 502)



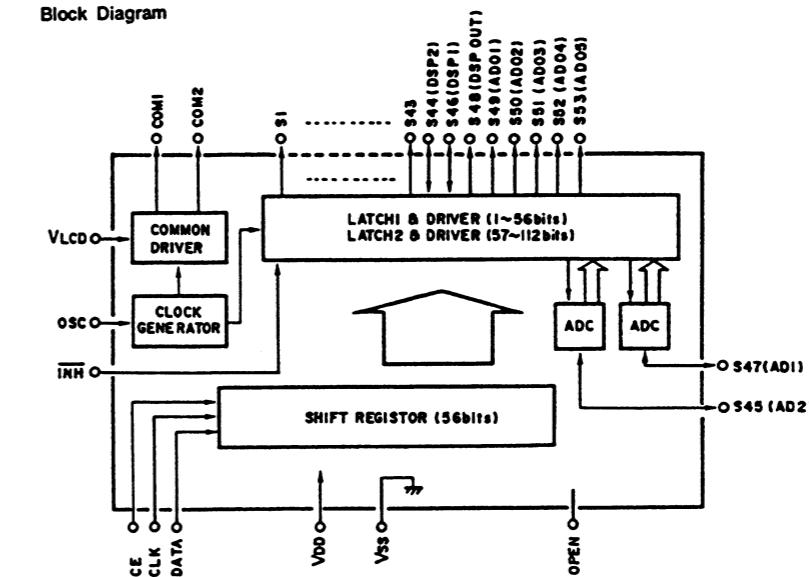
LC7582 (IC901)



Pin Configuration

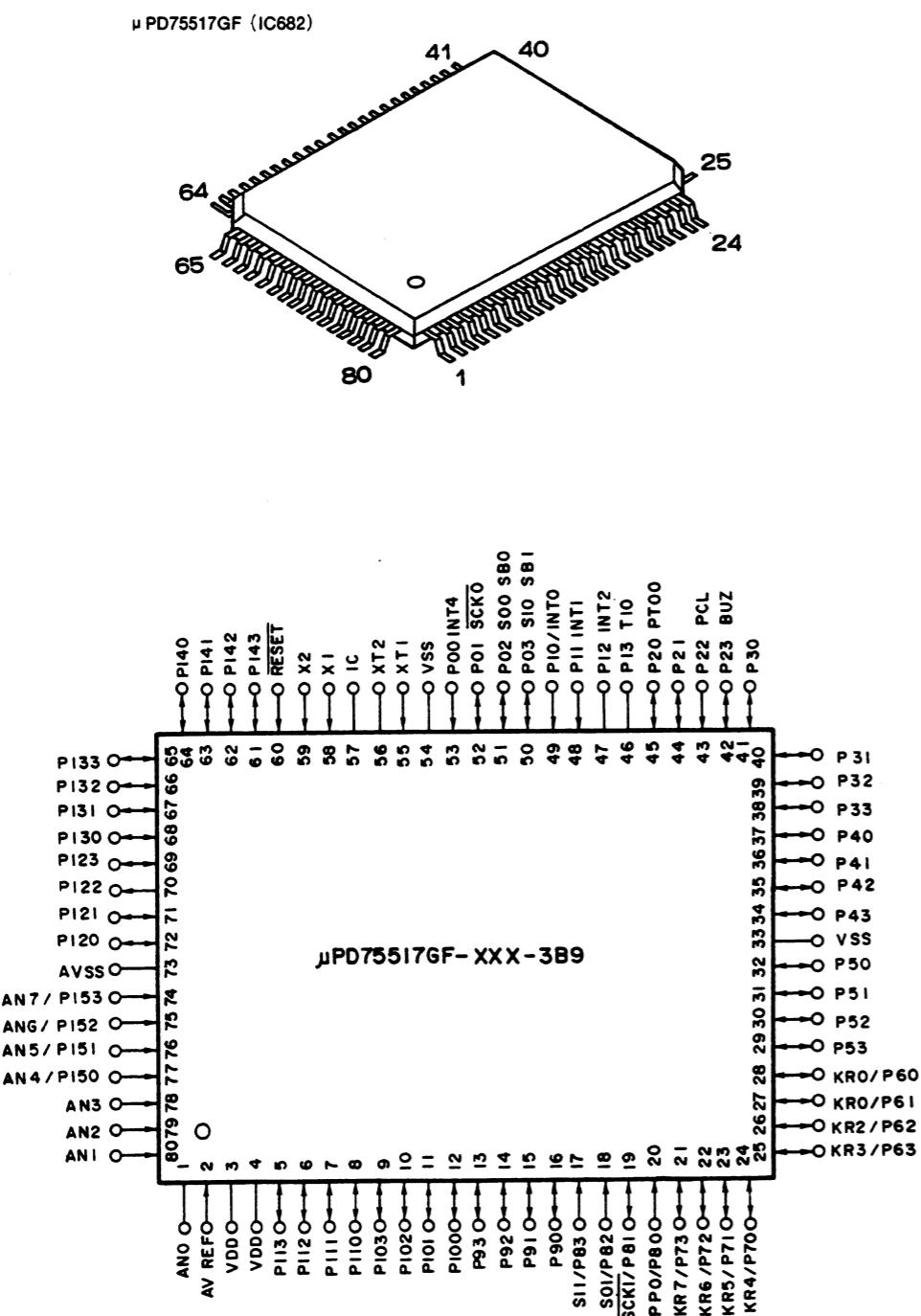
Step Voltage Difference
Input voltage of S45 (AD2) and S47 (AD1)

Block Diagram



Pin Description

- S1~S13 : Segment output pins
- S46 (DSP1), S44 (DSP2) : Segment output or DSP input pins
- S47 (AD1), S45 (AD2) : Segment output or AD input pins
- S48 (DSPOUT) : Segment output or DSP output pins
- S49~S53 (AD01~5) : Segment output or AD output pins
- COM1,2 : Common output pins (At 1:1 duty, only COM1 is used and COM2 is open)
- Vlcd : Pin for LCD bias voltage setting
- OSC : Oscillation pin
- CE, CLK, DATA : Input pins for serial data transfer
- V_{cc}, V_{dd} : Supply pins
- INH : Display-off input pin (Valid only with the output driver. As a result, the transfer of serial data is possible while the display is off.)
- OPEN : No connection



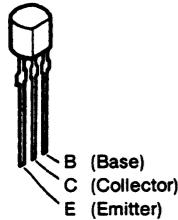
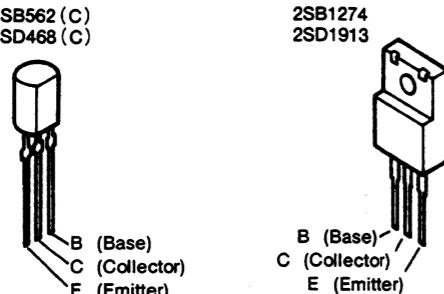
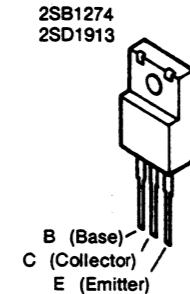
● Pin Description

No.	Board Name	Function Name	Function	No.	Board Name	Function Name	Function
1	AN0	NC	Ground (In)	42	P23/BUZ	PSVCDATA OUT	Data output for the servo control signal and D and F.
2	AVref	NC	Ground (In)	43	P22/PCL	PSVCXLT OUT	Servo control signal latch output
3	VDD		5 V	44	P21	PSVCLK	Clock output for the servo control signal and D and F.
4	VDD		5 V	45	P20/PT00	PLASER OUT	Laser on/off control output
5	P113	NC	Open (Out)	46	P13/T10	PSENSE IN	Servo condition detection signal input
6	P112	PPLYON	PLAY indication	47	P12/INT2	PGFS IN	Rotation sync signal input from DSP
7	P111	PAUTO	AUTO OFF indication	48	P11/INT1	PSCOR IN	Sub code sync signal input
8	P110	PDPLAY	PLAY indication	49	P10/INT0	SERIAL SIG IN	Denon bus input
9	P103	XRST OUT	Reset signal for DSP	50	P03/SI0	PSUBQ IN	Sub code data input
10	P102	POWER OFF OUT	Output for power on/off control	51	P02/S00	NC	Open (Out)
11	P101	DIGITAL OFF OUT	Output for digital on/off control	52	P01/SCK0	PSQCK OUT	Clock output for sub code reading
12	P100	STANDBY OUT	Output for power on/off control	53	P00/INT4	50/60 IN	50 Hz/60 Hz input
13	P93	PINITIAL	Test pin (Open)	54	VSS		Ground
14	P92	PEDIT	Test pin (Open)	55	XT1	NC	Ground
15	P91	PSEARCH	Test pin (Open)	56	XT2	NC	Open
16	P90	PDOUT	Test pin (Open)	57	IC	NC	Ground
17	P83/SI1	NC	Ground (In)	58	X1		4 MHz Cell lock
18	P82/SO1	PLCDDATA	Data for the LCD	59	X2		4 MHz Cell lock
19	P81/SCK1	PLCDCLK	Clock for the LCD	60	RESET		Reset signal input
20	P80/PP0	NC	Ground (In)	61	P143	PFOK IN	Focus OK signal input
21	P73/KR7	KS3 OUT	Key scan output	62	P142	PSWOP IN	Loader open position detection
22	P72/KR6	KS2 OUT	Key scan output	63	P141	PSWCL IN	Loader close position detection
23	P71/KR5	KS1 OUT	Key scan output	64	P140	PSWPMD IN	Pickup inner track position detection
24	P70/KR4	KS0 OUT	Key scan output	65	P133	PMVCL OUT	Loader drive signal
25	P63/KR3	KS7 OUT	Key scan output	66	P132	PMVOP OUT	Loader drive signal
26	P62/KR2	KS6 OUT	Key scan output	67	P131	D. MUTE OUT	Muting output for the LSI
27	P61/KR1	KS5 OUT	Key scan output	68	P130	SERIAL SIG OUT	Denon bus output
28	P60/KR0	KS4 OUT	Key scan output	69	P123	PDFLATCH OUT	Latch output for D and F
29	P53	KS8 OUT	Key scan output	70	P122	A. MUTE OUT	Audio muting output
30	P52	KS9 OUT	Key scan output	71	P121	PEMPHA OUT	Signal output with emphasis control
31	P51	G1	Open (Out)	72	P120	PDIRC OUT	Servo control signal output
32	P50	G2	Open (Out)	73	AVSS	NC	Ground
33	VSS		Ground (In)	74	AN7/P153	KR0 IN	Key return input
34	P43	CD ON/OFF IN	Input for digital on/off control	75	AN6/P152	KR1 IN	Key return input
35	P42	A.P. SEL IN	Selects the auto power on/off function	76	AN5/P151	KR2 IN	Key return input
36	P41	NC	Ground (In)	77	AN4/P150	KR3 IN	Key return input
37	P40	NC	Ground (In)	78	AN3	NC	Ground (In)
38	P33	PLCDOFF OUT	INH for the LCD	79	AN2	NC	Ground (In)
39	P32	PLCDCE OUT	CE for the LCD	80	AN1	NC	Ground (In)
40	P31	G3	Open (Out)				
41	P30	G4	Open (Out)				

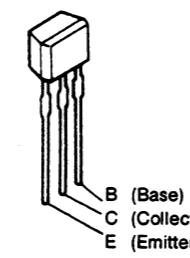
CD PLAYER SECTION

● Transistors

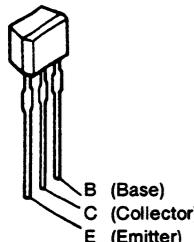
2SA1015 (GR)

2SB562 (C)
2SD468 (C)2SB1274
2SD1913

2SC2458 (Y/GR)



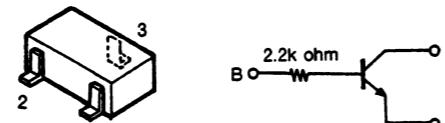
PNP Type

DTA114ES PNP Type
DTC114ES | NPN Type
DTC144ES

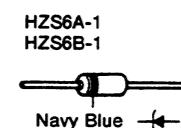
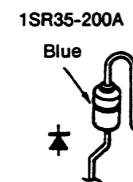
	R1	R2
DTA114ES	10k ohm	10k ohm
DTC114ES	47k ohm	47k ohm

	R1	R2
DTC114ES	10k ohm	10k ohm
DTC144ES	47k ohm	47k ohm

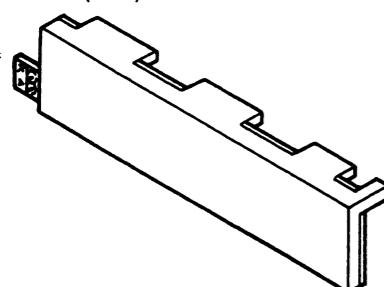
DTC323TK

1 : GND / Emitter
2 : In / Base
3 : Out / Collector

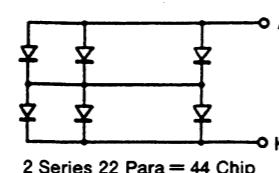
● Diodes

1SS270
1SS270A
ISS270 : Light Blue
ISS270A : Navy Blue

● LED ASS'Y

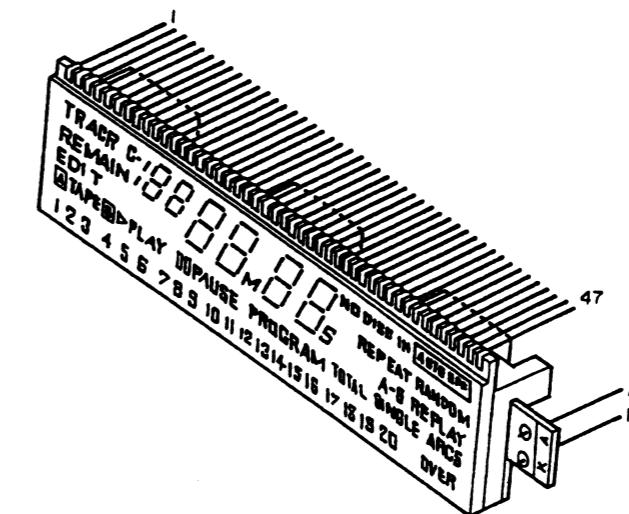
SLF-351D
Part No. 3939470009 (D581)

● Connection



● LCD ASS'Y (8233JP)

Part No. 3934141003



TRACK C-
REMAIN
EDIT 188 88 M 88 S NO DISC IN AUTO OFF
A TAPE B ▶PLAY II PAUSE PROGRAM TOTAL SINGLE ARCS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 OVER

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COM1	-	COM	6	PAUSE	4	B	2	TRACK	A	C-	1f	1a	1b	2d	2g	3d	3e	3a	3b	4e	4f	4b	M	
COM2	COM	-	5	PLAY	3	TAPE	1	REMAIN	EDIT	1d	1e	1g	1c	2e	2f	2b	2c	3f	3g	3c	4d	4a	4g	4c
NO.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
COM1	TOTAL	5e	5f	5a	5c	6f	6a	6b	17	B	DISC	IN	SINGLE	ARCS	RANDOM	AUTO	20	16	14	12	10	8	7b	
COM2	PROGRAM	5d	5g	5b	6d	6e	6g	6c	S	A-	NO	REPEAT	18	OVER	REPLAY	OFF	19	15	13	11	9	7	7c	

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

CD PLAYER SECTION

1

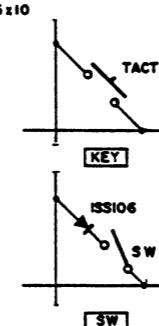
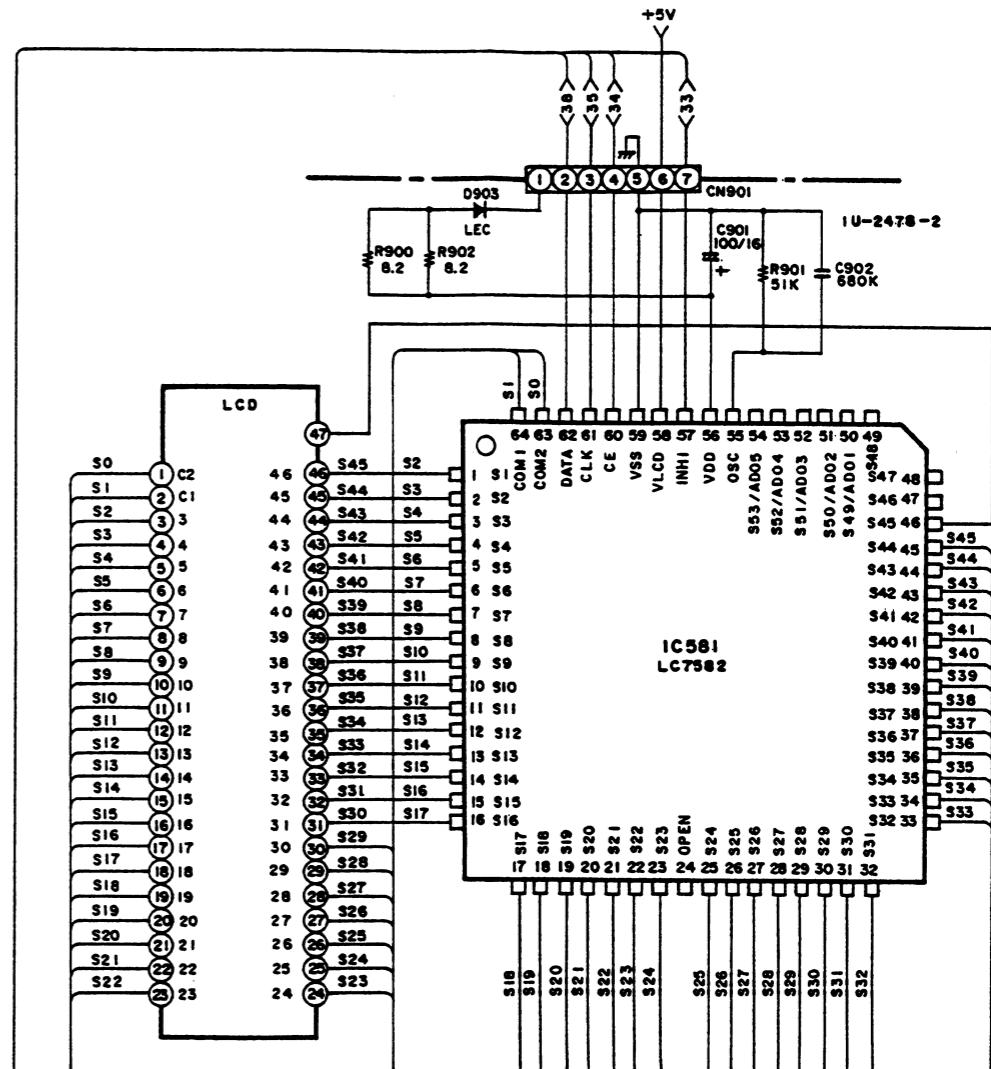
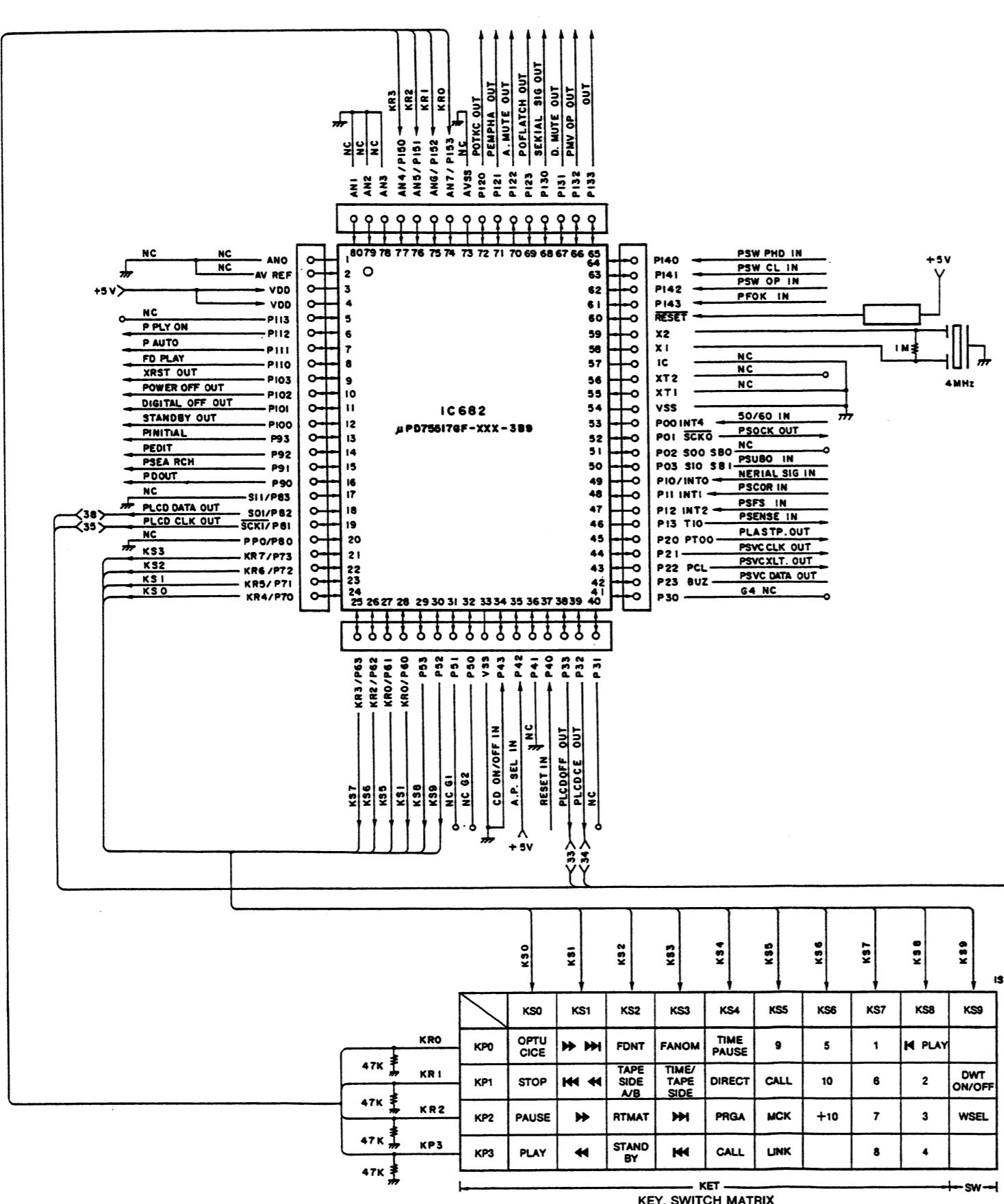
2

3

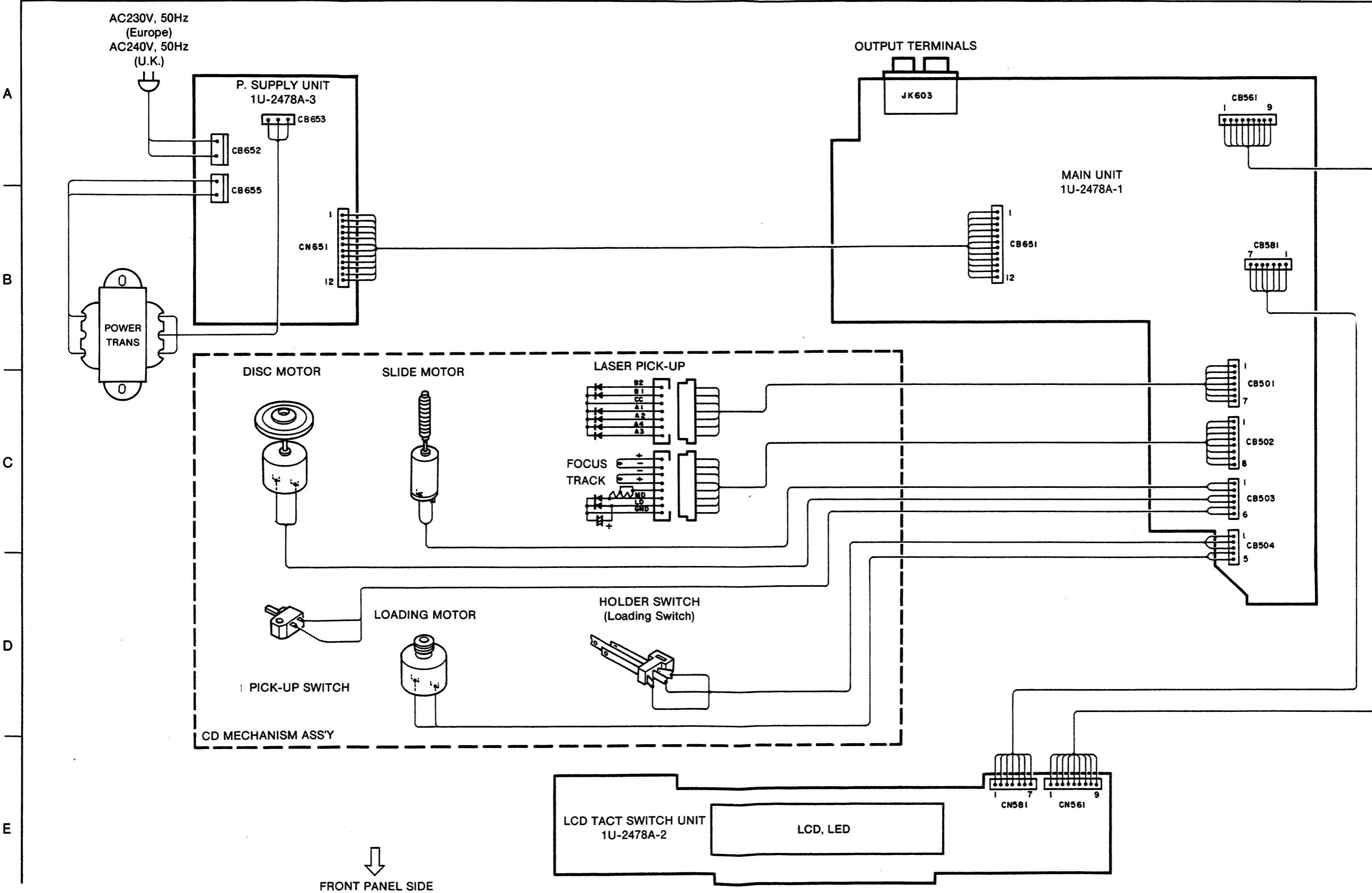
4

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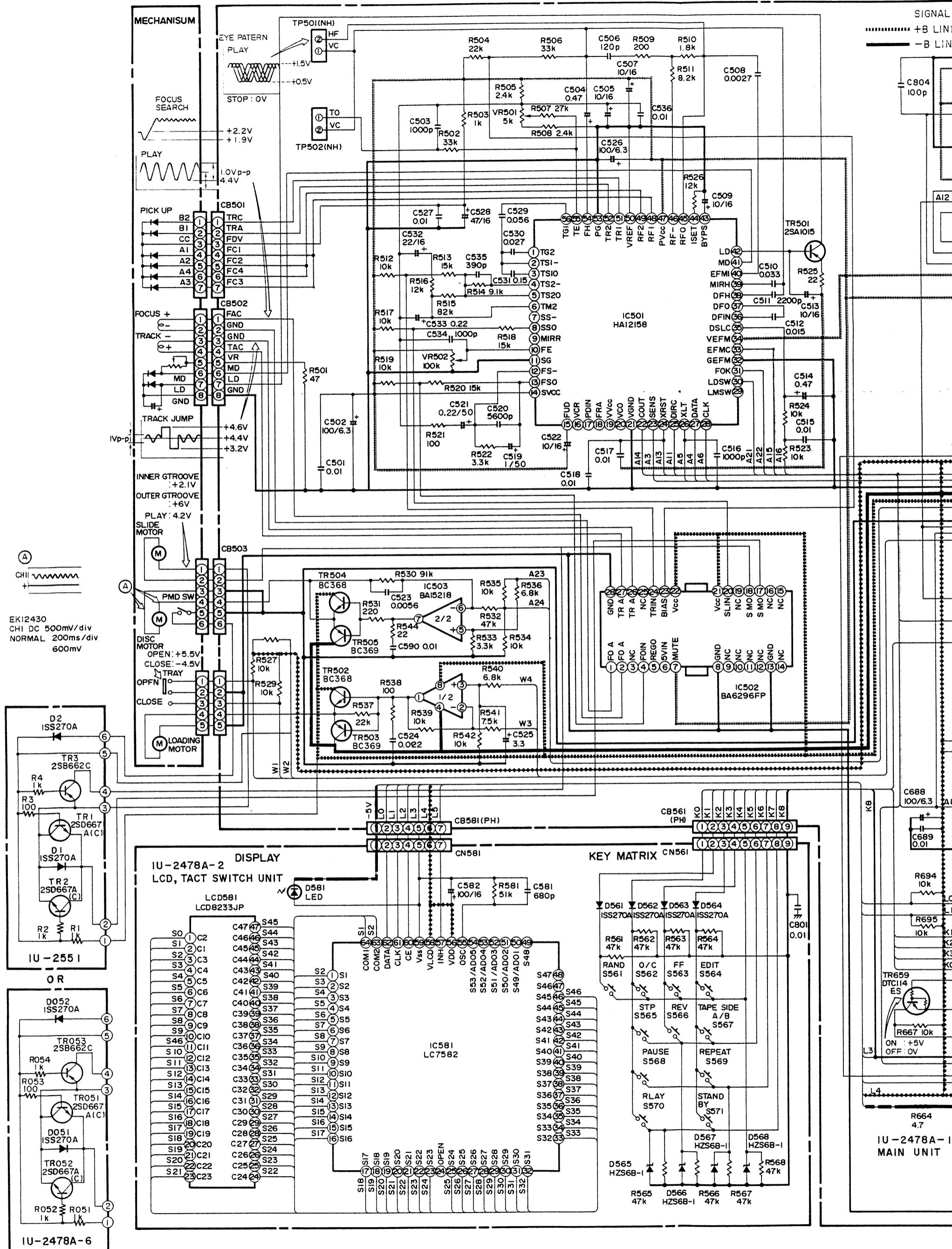
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1 2 3 4 5 6 7 8



1 2 3 4 5

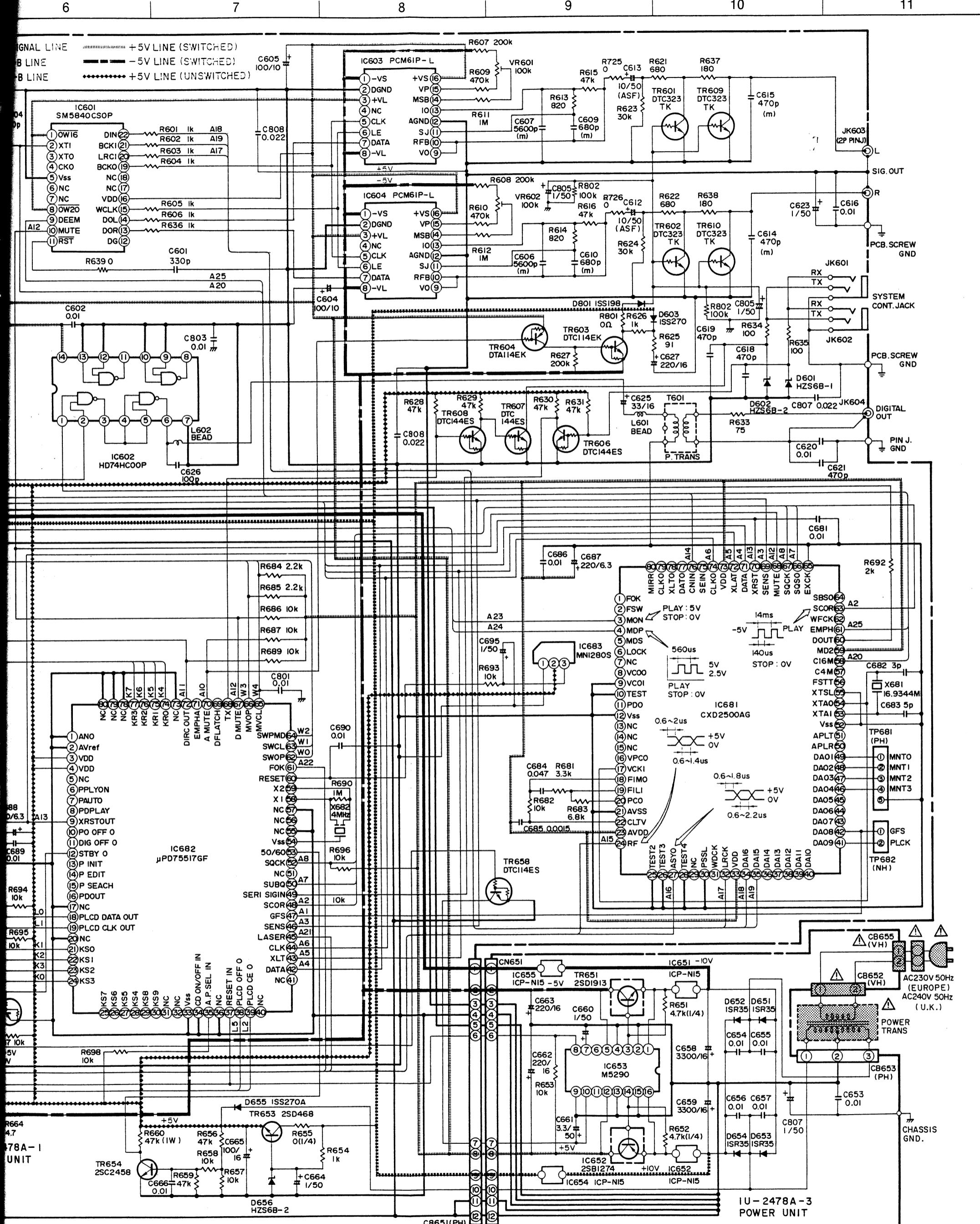


WARNING:

Parts marked with this symbol have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

SCHEMATIC DIAGRAM

CD PLAYER SECTION



CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING

DO NOT return the unit to the customer until the problem is located and corrected.

NOTES

ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

EXPLODED VIEW OF PARTS LIST

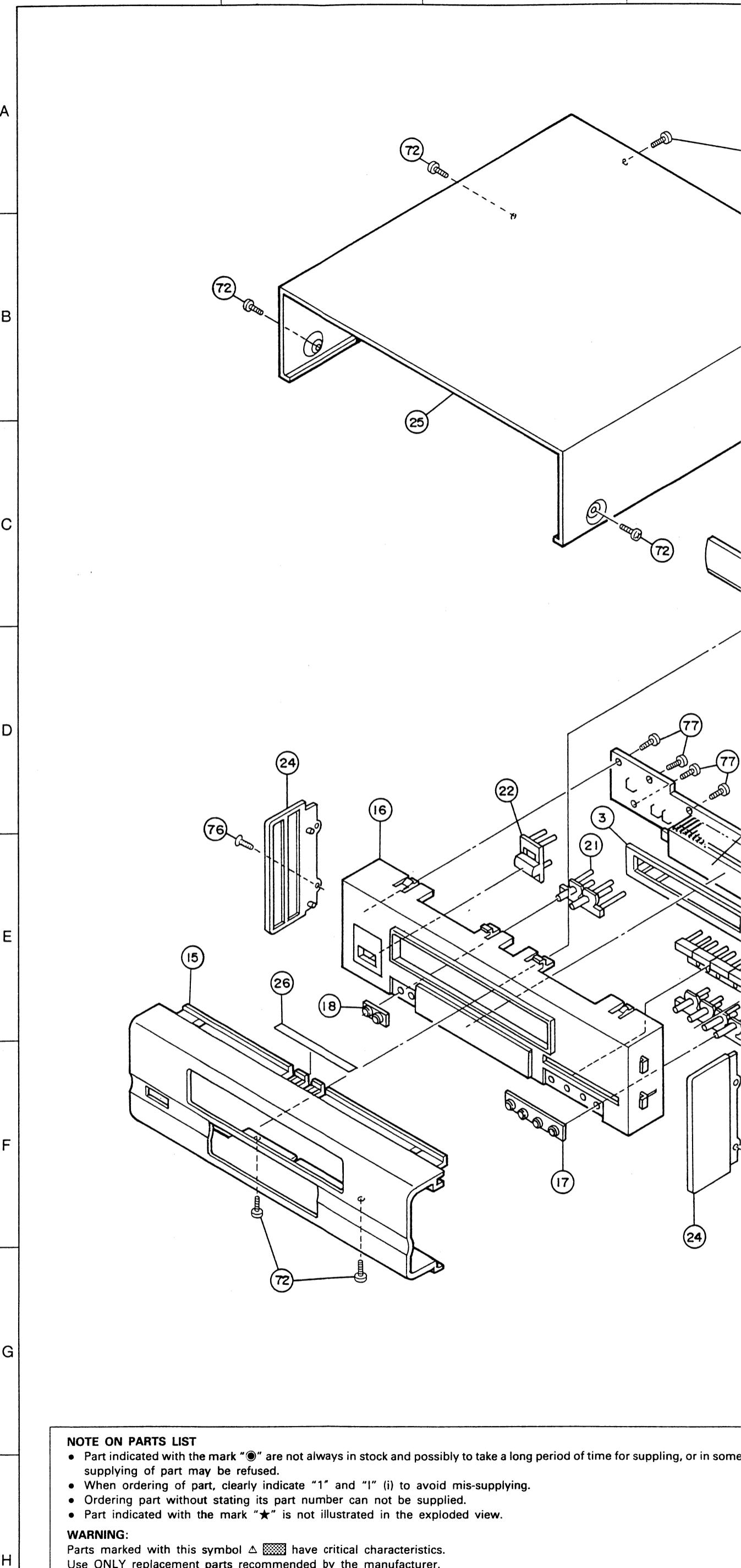
Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	1U- 2478 A	P.W. Board Unit Assy		1S
1-1	—	Main Unit		(1)
1-2	—	LCD.Tact Switch Unit		(1)
1-3	—	Power Unit		(1)
1-4	—	Audio Unit		(1)
2	393 4141 003	LCD (8233JP)		1
3	449 0057 009	LCD Holder		1
4	—	—		
5	204 8413 000	2 P Pin Jack(C-GND)		1
6	204 8366 005	1 P Pin Jack		1
7	204 8421 005	Mini Jack		2
8	411 1184 332	Main Chassis		1
9	104 0237 201	Foot Assy		4
10	105 1044 221	Rear Panel	Europe model	1
10	105 1044 234	Rear Panel	U.K. model	1
11	412 2814 028	Card Spacer(L=10)		1
12	412 3548 005	P.W.B Catcher		2
13	449 0073 119	Mech. Holder		3
14	337 0017 018	CD Mech. Unit		1
15	144 2212 219	Front Panel		1
16	146 1402 217	Inner Panel Assy		1
17	146 1420 121	Knob Guide(Round)	4 Gang	1
18	146 1420 134	Knob Guide(Round)	2 Gang	1
19	113 1547 376	Push Knob(Play)	4 Gang	1
20	113 1549 044	Push Knob(Round)	4 Gang	1
21	113 1549 057	Push Knob(Round)	2 Gang	1
22	113 1460 013	Power Knob		1
23	146 1401 111	Loader Panel Assy		1
24	146 1411 211	Side Plate		2
25	102 0519 211	Top Cover		1
26	122 0183 007	Spacer	100X10Xt0.5	1
27	412 1965 004	P.C Support	L=24	1
28	409 0052 019	Holder(A)	L=33.6	1
29	412 3485 016	P.W. Bracket		2
30	513 9316 000	Rating Sheet	Europe model	1
30	513 9316 026	Rating Sheet	U.K. model	1
31	412 9337 003	Trans Bracket		1
32	204 2091 000	AC/Cord W/Cord		1
33	412 0066 008	Cord Bush		1
34	513 2066 001	:Laser Caution		1
35	204 6002 000	Power Trans.	Europe model	1
35	204 9651 005	Power Trans.	U.K. model	1
★ 36	445 8004 007	Wire Clamper		1
37	—	—		
38	—	—		
39	513 0985 003	Inst. Label		1
★ 40	204 2307 028	7 P PH-PH Conn. Cord	CC501	1
★ 41	204 2306 032	8 P PH-PH Conn. Cord	CC502	1

SCREWS

71	473 7002 018	Tapping Screw(S)3X8		11
72	473 7015 005	Tapping Screw(S)3X6	Black	19
73	473 7508 046	Tapping Screw(P)3X6		2
74	477 0064 107	Fixing Screw		2
75	473 7508 017	Tapping Screw(P)3X10	Black	3
76	473 7500 028	F.Tapping Screw(P)3X8		2
77	473 7505 007	Tapping Screw(P)2.6X8		9
78	473 7508 046	Tapping Screw(P)3X16		2
79	473 7004 003	Tapping Screw(S)4X8		2
80	—	—		

PACKING & ACCESSORIES (Not included EXPLODED VIEW)

101	505 0241 005	Cabinet Cover		1
102	503 1062 106	:Cushion		1
103	503 1061 000	:Top Cushion		1
104	501 1657 007	Carton Case		1
105				



EXPLODED VIEW

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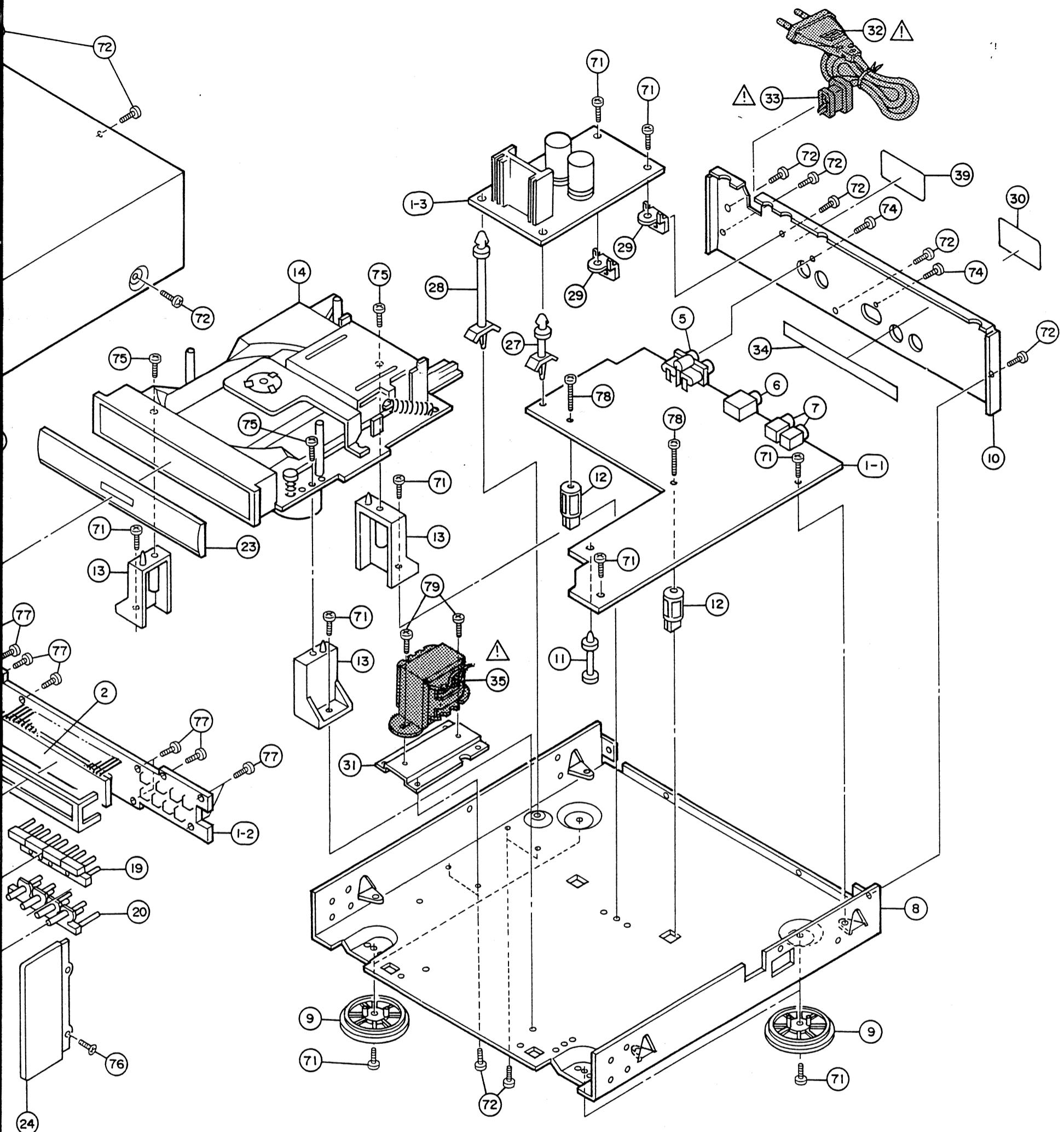
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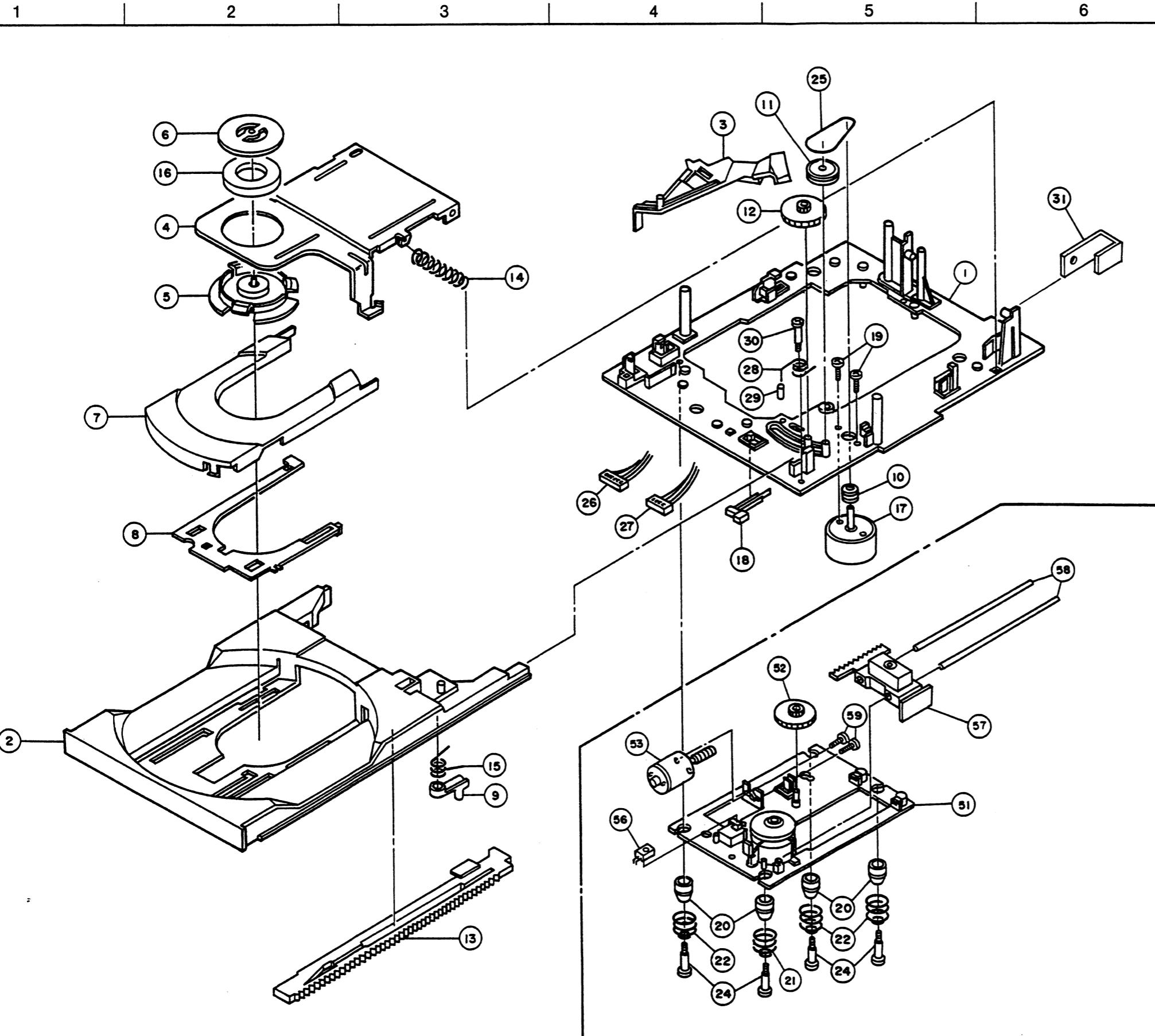
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CD MECHANISM Part No.: 3370017005



CD PLAYER SECTION

CD MECHANISM PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	9KA 81A2 95	Loading Plate Ass'y OS		1
1-1	—	Loading Plate		1
2	9KA 81G9 73	Tray 201		1
3	9KA 81G9 74	Switch Lever		1
4	9KA 81P4 62	Clamper Arm		1
5	9KA 81G9 75	Clamper		1
6	9KA 81P4 63	Clamper Plate		1
7	9KA 81G9 76	Disc Holder		1
8	9KA 81G9 77	Lifter Cam		1
9	9KA 81G9 78	Latch		1
10	9KA 81G2 35	Motor Pulley		1
11	9KA 81G1 22	Pulley Gear		1
12	9KA 81G1 23	Gear 3		1
13	9KA 81G5 81	Rack 11B		1
14	9KA 81S0 59	Clamp Spring		1
15	9KA 81S0 60	Latch Spring		1
16	9KA 82G0 57	Clamper Magnet		1
17	9KM 01T0 94	Motor		1
18	9KS 01W0 51	Leaf Switch		1
19	9KM 20S0 04	Tarns Screw		2
20	9KA 82G0 56	Float Cushion M3		4
21	9KA 81S0 66	Float Spring M3A		1
22	9KA 81S0 67	Float Spring M3B		3
23	—	—		
24	9KA 81H0 85	Fixing Screw C		4
25	9KA 82G1 80	Belt 1.4X18.1		1
26	9KA 82G1 23	Connector Cord		1
27	9KA 82G1 24	Connector Cord		1
28	9KA 81S0 71	Tray Spring 201		1
29	9KA 82G1 84	UL Tube 2X5.5		1
30	9KA 82H0 35	Floater Screw RM		1
31	—	—		
32	—	—		
51	9KA 81A3 33	Spindle Motor (T/T) Ass'y	Including Motor, T/T	1
51-1	—	Unit Plate M3G2		1
52	9KA 81G9 66	Slide Gear T		1
53	9KA 81A2 90	Feed Motor Ass'y		1
53-1	—	F. Motor		1
53-2	—	Warm Gear T		1
54	9KA 81A2 93	Turn Table Ass'y		1
54-1	—	Turn Table Plate		1
55	9KM 01T0 94	Motor		1
56	9KS 01W0 56	Switch		1
57	9KA 81G7 49	Pickup M3		1
58	9KA 81H1 07	Guide Bar		2
59	9KM 20N0 03	Pan Screw		4
60	—	—		
61	—	—		
62	—	—		